SEQ ID NO: 35

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ACCAAACAAG AGAAGAGACT TGCTTGGGAA TATTAATTCA AATAAAAATT AACTTAGGAT   60
TAAAGAACTT TACCGAAAGG TAAGGGGAAA GAAATCCTAA GACTGTAATC ATGTTGAGTC  120
TATTCGACAC ATTCAGTGCG CGTAGGCAGG AGAACATAAC GAAATCAGCT GGTGGGGCTG  180
TTATTCCCGG GCAAAAAAAC ACTGTGTCTA TATTTGCTCT TGGACCATCA ATAACAGATG  240
ACAATGATAA AATGACATTG GCTCTTCTCT TTTTGTCTCA TTCTTTAGAC AATGAAAAGC  300
AGCATGCGCA AAGAGCTGGA TTTTTAGTTT CTCTGTTATC AATGGCTTAT GCCAACCCAG  360
AATTATATTT AACATCAAAT GGTAGTAATG CAGATGTTAA ATATGTTATC TACATGATAG  420
AGAAAGACCC AGGAAGACAG AAATATGGTG GGTTTGTCGT CAAGACTAGA GAGATGGTTT  480
ATGAAAAGAC AACTGATTGG ATGTTCGGGA GTGATCTTGA GTATGATCAA GACAATATGT  540
TGCAAAATGG TAGAAGCACT TCTACAATCG AGGATCTTGT TCATACTTTT GGATATCCAT  600
CGTGTCTTGG AGCCCTTATA ATCCAAGTTT GGATAATACT TGTTAAGGCT ATAACCAGTA  660
TATCAGGATT GAGGAAAGGA TTCTTTACTC GGTTAGAAGC ATTTCGACAA GATGGAACAG  720
TTAAATCCAG TCTAGTGTTG AGCGGTGATG CAGTAGAACA AATTGGATCA ATTATGAGGT  780
CCCAACAGAG CTTGGTAACA CTCATGGTTG AAACACTGAT AACAATGAAC ACAGGCAGGA  840
ATGATCTGAC AACAATAGAA AAGAATATAC AGATTGTAGG AAACTACATC AGAGATGCAG  900
GTCTTGCTTC ATTTTTCAAC ACAATCAGAT ATGGCATTGA GACTAGAATG GCAGCTCTAA  960
CTCTGTCTAC CCTTAGACCG GATATCAACA GACTCAAGGC ACTGATCGAG TTATATCTAT 1020
CAAAGGGGCC ACGTGCTCCT TTTATATGCA TTTTGAGAGA TCCCGTGCAT GGTGAGTTTG 1080
CACCAGGCAA CTATCCTGCC CTCTGGAGTT ATGCGATGGG TGTAGCAGTT GTACAAAACA 1140
AGGCCATGCA ACAGTATGTA ACAGGAAGGT CTTATCTGGA TATTGAAATG TTCCAACTTG 1200
GTCAAGCAGT GGCACGTGAT GCCGAGTCGC AGATGAGTTC AATATTAGAG GATGAACTGG 1260
GGGTCACACA AGAAGCCAAG CAAAGCTTGA AGAAACACAT GAAGAACATC AGCAGTTCAG 1320
ATACAACCTT TCATAAGCCT ACAGGGGGAT CAGCCATAGA AATGGCGATA GATGAAGAAG 1380
CAGGGCAGCC TGAATCCAGA GGAGATCAGG ATCAAGGAGA TGAGCCTCGG TCATCCATAG 1440
TTCCTTATGC ATGGGCAGAC GAAACCGGGA ATGACAATCA AACTGAATCA ACTACAGAAA 1500
TTGACAGCAT CAAAACTGAA CAAAGAAACA TCAGAGACAG GCTGAACAAA AGACTCAACG 1560
AGAAAAGGAA ACAGAGTGAC CCGAGATCAA CTGACATCAC AAACAACACA AATCAAACTG 1620
AAATAGATGA TTTGTTCAGT GCATTCGGAA GCAACTAGTC ACAAAGAGAT GACCACTATC 1680
ACCAGCAACA AGTAAGAAAA ACTTAGGATT AATGGAAATT ATCCAATCCA GAGACGGAAG 1740
GACAAATCCA GAATCCAACC ACAACTCAAT CAACCAAAGA TTCATGGAAG ACAATGTTCA 1800
AAACAATCAA ATCATGGATT CTTGGGAAGA GGGATCAGGA GATAAATCAT CTGACATCTC 1860
ATCGGCCCTC GACATCATTG AATTCATACT CAGCACCGAC TCCCAAGAAA ACACGGCAGA 1920
CAGCAATGAA ATCAACACAG GAACCACAAG ACTTAGCACG ACAATCTACC AACCTGAATC 1980
CAAAACAACA GAAACAAGCA AGGAAAATAG TGGACCAGCT AACAAAAATC GACAGTTTGG 2040
GGCATCACAC GAACGTGCCA CAGAGACAAA AGATAGAAAT GTTAATCAGG AGACTGTACA 2100
GGGAGGATAT AGGAGAGGAA GCAGCCCAGA TAGTAGAACT GAGACTATGG TCACTCGAAG 2160
AATCTCCAGA AGCAGCCCAG ATCCTAACAA TGGAACCCAA ATCCAGGAAG ATATTGATTA 2220
CAATGAAGTT GGAGAGATGG ATAAGGACTC TACTAAGAGG GAAATGCGAC AATTTAAAGA 2280
TGTTCCAGTC AAGGTATCAG GAAGTGATGC CATTCCTCCA ACAAAACAAG ATGGAGACGG 2340
TGATGATGGA                                                        2350
```

FIGURE 1A

SEQ ID NO: 35

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AGAGGCCTGG AATCTATCAG TACATTTGAT TCAGGATATA CCAGTATAGT GACTGCCGCA  2410
ACACTAGATG ACGAAGAAGA ACTCCTTATG AAGAACAACA GGCCAAGAAA GTATCAATCA  2470
ACACCCCAGA ACAGTGACAA GGGAATTAAA AAAGGGGTTG GAAGGCCAAA AGACACAGAC  2530
AAACAATCAT CAATATTGGA CTACGAACTC AACTTCAAAG GATCGAAGAA GAGCCAGAAA  2590
ATCCTCAAAG CCAGCACGAA TACAGGAGAA CCAACAAGAC CACAGAATGG ATCCCAGGGG  2650
AAGAGAATCA CATCCTGGAA CATCCTCAAC AGCGAGAGCG GCAATCGAAC AGAATCAACA  2710
AACCAAACCC ATCAGACATC AACCTCGGGA CAGAACCACA CAATGGGACC AAGCAGAACA  2770
ACCTCCGAAC CAAGGATCAA GACACAAAAG ACGGATGGAA AGGAAAGAGA GGACACAGAA  2830
GAGAGCACTC GATTTACAGA AAGGGCGATT ACATTATTAC AGAATCTTGG TGTAATCCAA  2890
TCTGCAGCAA AATTAGACCT ATACCAAGAC AAGAGAGTTG TGTGTGTGGC GAATGTCCTA  2950
AACAATGCAG ATACTGCATC AAAGATAGAC TTCCTAGCAG GTTTGATGAT AGGAGTGTCA  3010
ATGGATCATG ATACCAAATT AAATCAGATT CAGAACGAGA TATTAAGTTT GAAAACTGAT  3070
CTTAAAAAGA TGGATGAATC ACATAGAAGA CTAATTGAGA ATCAAAAAGA ACAATTATCA  3130
CTGATCACAT CATTAATCTC AAATCTTAAA ATTATGACAG AGAGAGGAGG GAAGAAGGAC  3190
CAACCAGAAC CTAGCGGGAG GACATCCATG ATCAAGACAA AAGCAAAAGA AGAGAAAATA  3250
AAGAAAGTCA GGTTTGACCC TCTTATGGAA ACACAGGGCA TCGAGAAAAA CATCCCTGAC  3310
CTCTATAGAT CAATAGAGAA AACACCAGAA AACGACACAC AGATCAAATC AGAAATAAAC  3370
AGATTGAATG ATGAATCCAA TGCCACTAGA TTAGTACCTA GAAGAATAAG CAGTACAATG  3430
AGATCATTAA TAATAATCAT TAACAACAGC AATTTATCAT CAAAAGCAAA GCAATCATAC  3490
ATCAACGAAC TCAAGCTCTG CAAGAGTGAC GAGGAAGTGT CTGAGTTGAT GGACATGTTC  3550
AATGAGGATG TCAGCTCCCA GTAAACCGCC AACCAAGGGT CAACACCAAG AAAACCAATA  3610
GCACAAAACA GCCAATCAGA GACCACCCCA ATACACCAAA CCAATCAACA CATAACAAAG  3670
ATCTCCAGAT CATAGATGAT TAAGAAAAAC TTAGGATGAA AGGACTAATC AATCCTCCGA  3730
AACAATGAGC ATCACCAACT CCACAATCTA CACATTCCCA GAATCCTCTT TCTCCGAGAA  3790
TGGCAACATA GAGCCGTTAC CACTCAAGGT CAATGAACAG AGAAAGGCCA TACCTCATAT  3850
TAGGGTTGTC AAGATAGGAG ATCCGCCCAA ACATGGATCC AGATATCTGG ATGTCTTTTT  3910
ACTGGGCTTC TTTGAGATGG AAAGGTCAAA AGACAGGTAT GGGAGCATAA GTGATCTAGA  3970
TGATGATCCA AGTTACAAGG TTTGTGGCTC TGGATCATTG CCACTTGGGT TGGCTAGATA  4030
CACCGGAAAT GATCAGGAAC TCCTACAGGC TGCAACCAAG CTCGATATAG AAGTAAGAAG  4090
AACTGTAAAG GCTACGGAGA TGATAGTTTA CACTGTACAA AACATCAAAC CTGAACTATA  4150
TCCATGGTCC AGTAGATTAA GAAAAGGGAT GTTATTTGAC GCTAATAAGG TTGCACTTGC  4210
TCCTCAATGT CTTCCACTAG ATAGAGGGAT AAAATTCAGG GTGATATTTG TGAACTGCAC  4270
AGCAATTGGA TCAATAACTC TATTCAAAAT CCCTAAGTCC ATGGCATTGT TATCATTGCC  4330
TAATACAATA TCAATAAATC TACAAGTACA TATCAAAACA GGAGTTCAGA CAGATTCCAA  4390
AGGAGTAGTT CAGATTCTAG ATGAAAAAGG TGAAAAATCA CTAAATTTCA TGGTTCATCT  4450
CGGGTTGATC AAAAGGAAGA TGGGCAGAAT GTACTCAGTT GAATATTGTA AGCAGAAGAT  4510
CGAGAAGATG AGATTATTAT TCTCATTGGG ATTAGTTGGA GGGATCAGCT TCCACGTCAA  4570
CGCAACTGGC TCTATATCAA AGACATTAGC AAGTCAATTA GCATTCAAAA GAGAAATCTG  4630
CTATCCCCTA ATGGATCTGA ATCCACACTT AAATTCAGTT ATATGGGCAT CATCAGTTGA  4690
AATTACAAGG                                                        4700
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FIGURE 1B

SEQ ID NO: 35

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GTAGATGCAG TTCTCCAGCC TTCATTACCT GGCGAATTCA GATACTACCC AAACATCATA  4760
GCAAAAGGGG TCGGGAAAAT CAGACAGTAA AATCAACAAC CCTGATATCC AACATTGCAA  4820
ATCAGGCTAC CCACAGGAGA AAAATCAAAA ACTTAGGATC AAAGGGATCA CCACGAACCC  4880
CGGAAAACAG CCAAACAAAC CAACACACAA ATCACAGACA AAAAGGAGAA GGCACTGCAA  4940
AGACCGAGAA AAAACAGAAC GCACACAACC AAGCAGAGAA AAGCCAAAGC CCGCCATTCA  5000
CAAACACACC AACAATCCTG CAAACAAGCA CCAAAACAGA GGTCAAAAGA CAAAGAGCAC  5060
CAGATATGAC CATCACAACC ACAATCATAG CCATATTACT AATACCCCCA TCATTTTGTC  5120
AAATAGACAT AACAAAACTG CAACGTGTAG GTGTGTTAGT CAACAATCCT AAAGGCATGA  5180
AGATTTCACA AAATTTCGAA ACGAGATACC TGATATTAAG TTTGATACCC AAAATAGAGA  5240
ATTCACACTC ATGTGGGGAT CAACAGATAA ACCAATACAA GAAGTTATTG GATAGATTGA  5300
TAATTCCTCT ATATGATGGA TTAAAATTAC AAAAAGATGT AATAGTAGTA AGTCATGAAA  5360
CCCACAACAA TACTAATCTT AGGACAAAAC GATTCTTTGG AGAGATAATT GGGACAATTG  5420
CGATAGGGAT AGCCACTTCA GCACAAATCA CCGCAGCAGT CGCTCTTGTC GAAGCTAAAC  5480
AGGCAAAGTC AGACATAGAA AAACTCAAAG AGGCTATAAG AGACACAAAC AAGGCAGTAC  5540
AATCGATTCA AAGTTCTGTA GGTAACCTAA TTGTTGCAGT TAAATCAGTT CAAGACTATG  5600
TCAACAATGA AATTATACCT TCAATCACAA GATTAGGCTG TGAAGCAGCA GGGTTACAAT  5660
TGGGAATTGC ATTGACACAA CATTACTCAG AATTAACAAA TATATTTGGT GATAATATAG  5720
GAACACTGAA AGAAAAAGGG ATAAAATTAC AAGGGATAGC ATCATTATAT CACACAAACA  5780
TAACGGAAAT ATTTACTACT TCAACAGTTG ACCAATATGA TATTTATGAC CTATTATTCA  5840
CTGAGTCAAT CAAGATGAGA GTGATAGATG TTGATTTGAG TGATTACTCA ATTACTCTTC  5900
AAGTTAGACT TCCTTTATTA ACTAAACTAT CAAATACTCA AATTTATAAA GTAGATTCTA  5960
TATCATACAA CATCCAGGGC AAAGAGTGGT ATATTCCTCT TCCCAATCAC ATCATGACAA  6020
AAGGGGCTTT TCTAGGTGGT GCTGATATTA AAGAATGCAT AGAGGCATTC AGCAGTTATA  6080
TATGTCCTTC TGATCCAGGT TACATATTAA ATCACGAGAT AGAGAATTGT TTATCAGGGA  6140
ACATAACACA GTGTCCTAAG ACTGTTGTTA CATCAGATGT GGTACCACGA TACGCGTTTG  6200
TGAATGGTGG ATTAATTGCA AACTGCATAA CAACTACATG TACATGCAAT GGAATTGACA  6260
ATAGAATTAA TCAATCACCT GATCAAGGAA TTAAGATCAT AACACATAAA GAATGCCAGG  6320
TAATAGGTAT AAACGGAATG TTATTCAATA CTAATAGAGA AGGGACATTA GCAACTTATA  6380
CATTTGATGA CATCATATTA AATAACTCTG TTGCACTTAA TCCAATTGAT ATATCTATGG  6440
AACTCAACAA GGCAAAACTA GAATTAGAAG AATCGAAGGA ATGGATAAAG AAATCAAATC  6500
AAAAGTTAGA TTCCGTTGGA AGTTGGTATC AATCTAGTGC AACAATCACC ATAATCATAG  6560
TGATGATAAT AATTCTAGTT ATAATCAATA TAACAATTAT TGTAGTCATA ATCAAATTCC  6620
ATAGAATTCA GGGGAAAGAT CAAAACGACA AAAACAGTGA GCCGTATATA CTGACAAATA  6680
GACAATAAGA CTATACACGA TCAAATATAA AAAGTACAAA AAACTTAGGA ACAAAGTTGT  6740
TCAACACAGC AGCACCGAAT AGACCAAAAG GCAGCGCAGA GGCGACACCA AACTCAAAAA  6800
TGGAATATTG GAAACACACA AACAGCATAA ATAACACCAA CAATGAAACC GAAACAGCCA  6860
GAGGCAAACA TAGTAGCAAG GTTACAAATA TCATAATGTA CACCTTCTGG ACAATAACAT  6920
TAACAATATT ATCAGTCATT TTTATAATGA TATTGACAAA CTTAATTCAA GAGAACAATC  6980
ATAATAAATT AATGTTGCAG GAAATAAGAA AAGAATTCGC GGCAATAGAC ACCAAGATTC  7040
AGAGGACTTC                                                         7050
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FIGURE 1C

SEQ ID NO: 35

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GGATGACATT GGAACCTCAA TACAGTCAGG AATAAATACA AGACTTCTCA CAATTCAGAG  7110
TCATGTTCAA AACTATATCC CACTATCATT AACACAACAA ATGTCAGATC TCAGAAAATT  7170
TATCAATGAT CTAACAAATA AAAGAGAACA TCAAGAAGTG CCAATACAGA GAATGACTCA  7230
TGATAGAGGT ATAGAACCCC TAAATCCAAA CAAGTTCTGG AGGTGTACAT CTGGTAACCC  7290
ATCTCTAACA AGTAGTCCTA AGATAAGGTT AATACCAGGA CCAGGTTTAT TAGCAACATC  7350
TACTACAGTA AATGGCTGTA TTAGAATTCC ATCGTTAGTA ATCAATCATC TAATCTATGC  7410
TTACACCTCT AATCTTATTA CCCAGGGCTG TCAAGATATA GGGAAATCTT ACCAAGTACT  7470
ACAAATAGGG ATAATTACTA TAAATTCGGA CCTAGTACCT GATTTAAACC CCAGAGTCAC  7530
ACATACATTT AATATTGATG ATAATAGAAG ATCTTGCTCT CTGGCACTAT TGAATACAGA  7590
TGTTTATCAG TTATGCTCAA CACCAAAAGT TGATGAAAGA TCCGATTATG CATCAACAGG  7650
TATTGAGGAT ATTGTACTTG ACATTGTCAC TAATAATGGA TTAATTATAA CAACAAGGTT  7710
TACAAATAAT AATATAACTT TTGATAAACC GTATGCAGCA TTGTATCCAT CAGTGGGACC  7770
AGGAATCTAT TATAAGGATA AAGTTATATT TCTCGGATAT GGAGGTCTAG AGCATGAAGA  7830
AAACGGAGAC GTAATATGTA ATACAACTGG TTGTCCTGGC AAAACACAGA GAGACTGTAA  7890
TCAGGCTTCT TATAGCCCAT GGTTCTCAAA TAGGAGAATG GTAAACTCTA TTATTGTTGT  7950
TGATAAAGGC ATAGATGCAA CTTTTAGCTT GAGGGTGTGG ACTATTCCAA TGAGCCAAAA  8010
TTATTGGGGA TCAGAAGGAA GATTACTTTT ATTAGGTGAC AGAATATACA TATATACTAG  8070
ATCCACAAGT TGGCACAGTA AATTACAGTT AGGGGTAATT GATATTTCTG ATTATACTAA  8130
TATAAGAATA AATTGGACTT GGCATAATGT ACTATCACGG CCAGGGAATG ATGAATGTCC  8190
ATGGGGTCAT TCATGCCCAG ACGGATGTAT AACAGGAGTT TACACTGATG CATATCCGCT  8250
AAACCCATCG GGGAGTGTTG TATCATCAGT AATTCTTGAT TCACAAAAGT CTAGAGAAAA  8310
CCCAATCATT ACTTACTCAA CAGCTACAAA TAGAATAAAT GAATTAGCTA TATATAACAG  8370
AACACTTCCA GCTGCATATA CAACAACAAA TTGTATCACA CATTATGATA AAGGGTATTG  8430
TTTTCATATA GTAGAAATAA ATCACAGAAG TTTGAATACG TTTCAACCTA TGTTATTCAA  8490
AACAGAAGTT CCAAAAAACT GCAGCTAAAT TGATCATCGC ATATCGGATG CAAGATGACA  8550
TTAAAAGAGA CCACCAGACA GACAACACAG GAGACGATGC AAGATATAAA GAAATAATAA  8610
AAAACTTAGG AGAAAAGTGT GCAAGAAAAA TGGACACCGA GTCCCACAGC GGCACAACAT  8670
CTGACATTCT GTACCCTGAA TGTCACCTCA ATTCTCCTAT AGTTAAAGGA AAGATAGCAC  8730
AACTGCATAC AATAATGAGT TTGCCTCAGC CCTACGATAT GGATGATGAT TCAATACTGA  8790
TTATTACTAG ACAAAAAATT AAACTCAATA AATTAGATAA AAGACAACGG TCAATTAGGA  8850
AATTAAGATC AGTCTTAATG GAAAGAGTAA GTGATCTAGG TAAATATACC TTTATCAGAT  8910
ATCCAGAGAT GTCTAGTGAA ATGTTCCAAT TATGTATACC CGGAATTAAT AATAAAATAA  8970
ATGAATTGCT AAGTAAAGCA AGTAAAACAT ATAATCAAAT GACTGATGGA TTAAGAGATC  9030
TATGGGTTAC TATACTATCG AAGTTAGCAT CGAAAAATGA TGGAAGTAAT TATGATATCA  9090
ATGAAGATAT TAGCAATATA TCAAATGTTC ACATGACTTA TCAATCAGAC AAATGGTATA  9150
ATCCATTCAA GACATGGTTT ACTATTAAGT ATGACATGAG AAGATTACAA AAAGCCAAAA  9210
ATGAGATTAC ATTCAATAGG CATAAAGATT ATAATCTATT AGAAGACCAA AAGAATATAT  9270
TGCTGATACA TCCAGAACTC GTCTTAATAT TAGATAAACA AAATTACAAT GGGTATATAA  9330
TGACTCCTGA ATTGGTACTA ATGTATTGTG ATGTAGTTGA AGGGAGGTGG AATATAAGTT  9390
CATGTGCAAA                                                        9400
```

FIGURE 1D

SEQ ID NO: 35

ATTGGATCCT AAGTTACAAT CAATGTATTA TAAGGGTAAC AATTTATGGG AAATAATAGA 9460
TGGACTATTC TCGACCTTAG GAGAAAGAAC ATTTGACATA ATATCACTAT TAGAACCACT 9520
TGCATTATCG CTCATTCAAA CTTATGACCC GGTTAAACAG CTCAGGGGGG CTTTTTTAAA 9580
TCACGTGTTA TCAGAAATGG AATTAATATT TGCAGCTGAG TGTACAACAG AGGAAATACC 9640
TAATGTGGAT TATATAGATA AAATTTTAGA TGTGTTCAAA GAATCAACAA TAGATGAAAT 9700
AGCAGAAATT TTCTCTTTCT TCCGAACTTT TGGACACCCT CCATTAGAGG CGAGTATAGC 9760
AGCAGAGAAA GTTAGAAAGT ATATGTATAC TGAGAAATGC TTGAAATTTG ATACTATCAA 9820
TAAATGTCAT GCTATTTTTT GTACAATAAT TATAAATGGA TATAGAGAAA GACATGGTGG 9880
TCAATGGCCT CCAGTTACAT TACCTGTCCA TGCACATGAA TTTATCATAA ATGCATACGG 9940
ATCAAATTCT GCCATATCAT ATGAGAATGC TGTAGATTAT TATAAGAGCT TCATAGGAAT 10000
AAAATTTGAC AAGTTTATAG AGCCTCAATT GGATGAAGAC TTAACTATTT ATATGAAAGA 10060
TAAAGCATTA TCCCCAAAGA AATCAAACTG GGACACAGTC TATCCAGCTT CAAACCTGTT 10120
ATACCGCACT AATGTGTCTC ATGATTCACG AAGATTGGTT GAAGTATTTA TAGCAGATAG 10180
TAAATTTGAT CCCCACCAAG TATTAGATTA CGTAGAATCA GGATATTGGC TGGATGATCC 10240
TGAATTTAAT ATCTCATATA GTTTAAAAGA GAAAGAAATA AAACAAGAAG GTAGACTTTT 10300
TGCAAAAATG ACATACAAGA TGAGGGCTAC ACAAGTATTA TCAGAAACAT TATTGGCGAA 10360
TAATATAGGG AAATTCTTCC AAGAGAATGG GATGGTTAAA GGAGAAATTG AATTACTCAA 10420
GAGACTAACA ACAATATCTA TGTCTGGAGT TCCGCGGTAT AATGAGGTAT ACAATAATTC 10480
AAAAAGTCAC ACAGAAGAAC TTCAAGCTTA TAATGCAATT AGCAGTTCCA ATTTATCTTC 10540
TAATCAGAAG TCAAAGAAGT TTGAATTTAA ATCTACAGAT ATATACAATG ATGGATACGA 10600
AACCGTAAGC TGCTTCTTAA CGACAGATCT TAAAAAATAT TGTTTAAATT GGAGGTATGA 10660
ATCAACAGCT TTATTCGGTG ATACTTGTAA TCAGATATTT GGGTTAAAGG AATTATTTAA 10720
TTGGCTGCAC CCTCGCCTTG AAAAGAGTAC AATATATGTT GGAGATCCTT ATTGCCCGCC 10780
ATCAGATATT GAACATTTAC CACTTGATGA CCATCCTGAT TCAGGATTTT ATGTTCATAA 10840
TCCTAAAGGA GGAATAGAAG GGTTTTGCCA AAAGTTATGG ACACTCATAT CTATCAGTGC 10900
AATACATTTA GCAGCTGTCA AAATCGGTGT AAGAGTTACT GCAATGGTTC AAGGGGATAA 10960
TCAAGCCATA GCTGTTACCA CAAGAGTACC TAATAATTAT GATTATAAAG TTAAGAAAGA 11020
GATTGTTTAT AAAGATGTGG TAAGATTTTT TGATTCCTTG AGAGAGGTGA TGGATGATCT 11080
GGGTCATGAG CTCAAACTAA ATGAAACTAT AATAAGTAGT AAAATGTTTA TATATAGCAA 11140
AAGGATATAC TATGACGGAA GAATCCTTCC TCAGGCATTA AAAGCATTGT CTAGATGTGT 11200
TTTTTGGTCT GAAACAATCA TAGATGAGAC AAGATCAGCA TCCTCAAATC TGGCTACATC 11260
GTTTGCAAAG GCCATTGAGA ATGGCTACTC ACCTGTATTG GGATATGTAT GCTCAATCTT 11320
CAAAAATATC CAACAGTTGT ATATAGCGCT TGGAATGAAT ATAAACCCAA CTATAACCCA 11380
AAATATTAAA GATCAATATT TCAGGAATAT TCATTGGATG CAATATGCCT CCTTAATCCC 11440
TGCTAGTGTC GGAGGATTTA ATTATATGGC CATGTCAAGG TGTTTTGTCA GAAACATTGG 11500
AGATCCTACA GTCGCTGCGT TAGCCGATAT TAAAAGATTT ATAAAAGCAA ATTTGTTAGA 11560
TCGAGGTGTC CTTTACAGAA TTATGAATCA AGAACCAGGC GAGTCTTCTT TTTTAGACTG 11620
GGCCTCAGAT CCCTATTCAT GTAACTTACC ACAATCTCAA AATATAACCA CCATGATAAA 11680
GAATATAACT GCAAGAAATG TACTACAGGA CTCACCAAAC CCATTACTAT CTGGATTATT 11740
TACAAGTACA 11750

FIGURE 1E

SEQ ID NO: 35

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ATGATAGAAG AGGATGAGGA ATTAGCTGAG TTCCTAATGG ACAGGAGAAT AATCCTCCCA  11810
AGAGTTGCAC ATGACATTTT AGATAATTCT CTTACTGGAA TTAGGAATGC TATAGCTGGT  11870
ATGTTGGATA CAACAAAATC ACTAATTCGA GTAGGGATAA GCAGAGGAGG ATTAACCTAT  11930
AACTTATTAA GAAAGATAAG CAACTATGAT CTTGTACAAT ATGAGACACT TAGTAAAACT  11990
TTAAGACTAA TAGTCAGTGA CAAGATTAAG TATGAAGATA TGTGCTCAGT AGACCTAGCC  12050
ATATCATTAA GACAAAAAAT GTGGATGCAT TTATCAGGAG GAAGAATGAT AAATGGACTT  12110
GAAACTCCAG ATCCTTTAGA GTTACTGTCT GGAGTAATAA TAACAGGATC TGAACATTGT  12170
AGGATATGTT ATTCAACTGA AGGTGAAAGC CCATATACAT GGATGTATTT ACCAGGCAAT  12230
CTTAATATAG GATCAGCTGA GACAGGAATA GCATCATTAA GGGTCCCTTA CTTTGGATCA  12290
GTTACAGATG AGAGATCTGA AGCACAATTA GGGTATATCA AAAATCTAAG CAAACCAGCT  12350
AAGGCTGCTA TAAGAATAGC AATGATATAT ACTTGGGCAT TTGGGAATGA CGAAATATCT  12410
TGGATGGAAG CATCACAGAT TGCACAAACA CGTGCAAACT TTACATTGGA TAGCTTAAAG  12470
ATTTTGACAC CAGTGACAAC ATCAACAAAT CTATCACACA GGTTAAAAGA TACTGCTACT  12530
CAGATGAAAT TTTCTAGTAC ATCACTTATT AGAGTAAGCA GGTTCATCAC AATATCTAAT  12590
GATAATATGT CTATTAAAGA AGCAAATGAA ACTAAAGATA CAAATCTTAT TTATCAACAG  12650
GTAATGTTAA CAGGATTAAG TGTATTTGAA TATCTATTTA GGTTAGAGGA GAGTACAGGA  12710
CATAACCCTA TGGTCATGCA TCTACATATA GAGGATGGAT GTTGTATAAA AGAGAGTTAC  12770
AATGATGAGC ATATCAATCC GGAGTCTACA TTAGAGTTAA TCAAATACCC TGAGAGTAAT  12830
GAATTTATAT ATGATAAGGA CCCTTTAAAG GATATAGATC TATCAAAATT AATGGTTATA  12890
AGAGATCATT CTTATACAAT TGACATGAAT TACTGGGATG ACACAGATAT TGTACATGCA  12950
ATATCAATAT GTACTGCAGT TACAATAGCA GATACAATGT CGCAGCTAGA TCGGGATAAT  13010
CTTAAGGAGC TGGTTGTGAT TGCAAATGAT GATGATATTA ACAGTCTGAT AACTGAATTT  13070
CTGACCCTAG ATATACTAGT GTTTCTCAAA ACATTTGGAG GGTTACTCGT GAATCAATTT  13130
GCATATACCC TTTATGGATT GAAAATAGAA GGAAGGGATC CCATTTGGGA TTATATAATG  13190
AGAACATTAA AAGACACCTC ACATTCAGTA CTTAAAGTAT TATCTAATGC ACTATCTCAT  13250
CCAAAAGTGT TTAAGAGATT TTGGGATTGT GGAGTTTTGA ATCCTATTTA TGGTCCTAAT  13310
ACTGCTAGTC AAGATCAAGT TAAGCTTGCT CTCTCGATTT GCGAGTACTC CTTGGATCTA  13370
TTTATGAGAG AATGGTTGAA TGGAGCATCA CTTGAGATCT ATATCTGTGA TAGTGACATG  13430
GAAATAGCAA ATGACAGAAG ACAAGCATTT CTCTCAAGAC ATCTTGCCTT TGTGTGTTGT  13490
TTAGCAGAGA TAGCATCTTT TGGACCAAAT TTATTAAATC TAACATATCT AGAGAGACTT  13550
GATGAATTAA AACAATACTT AGATCTGAAC ATCAAAGAAG ATCCTACTCT TAAATATGTG  13610
CAAGTATCAG GACTGTTAAT TAAATCATTC CCCTCAACTG TTACGTATGT AAGGAAAACT  13670
GCGATTAAGT ATCTGAGGAT TCGTGGTATT AATCCGCCTG AAACGATTGA AGATTGGGAT  13730
CCCATAGAAG ATGAGAATAT CTTAGACAAT ATTGTTAAAA CTGTAAATGA CAATTGCAGT  13790
GATAATCAAA AGAGAAATAA AAGTAGTTAT TTCTGGGGAT TAGCTCTAAA GAATTATCAA  13850
GTCGTGAAAA TAAGATCCAT AACGAGTGAT TCTGAAGTTA ATGAAGCTTC GAATGTTACT  13910
ACACATGGAA TGACACTTCC TCAGGGAGGA AGTTATCTAT CACATCAGCT GAGGTTATTT  13970
GGAGTAAACA GTACAAGTTG TCTTAAAGCT CTTGAATTAT CACAAATCTT AATGAGGGAA  14030
GTTAAAAAAG ATAAAGATAG ACTCTTTTTA GGAGAAGGAG CAGGAGCTAT GTTAGCATGT  14090
TATGATGCTA                                                         14100
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FIGURE 1F

SEQ ID NO: 35

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CACTCGGTCC TGCAATAAAT TATTATAATT CTGGTTTAAA TATTACAGAT GTAATTGGTC   14160
AACGGGAATT AAAAATCTTC CCATCAGAAG TATCATTAGT AGGTAAAAAA CTAGGAAATG   14220
TAACACAGAT TCTTAATCGG GTGAGGGTGT TATTTAATGG GAATCCCAAT TCAACATGGA   14280
TAGGAAATAT GGAATGTGAG AGTTTAATAT GGAGTGAATT AAATGATAAG TCAATTGGTT   14340
TAGTACATTG TGACATGGAG GGAGCGATAG GCAAATCAGA AGAAACTGTT CTACATGAAC   14400
ATTATAGTAT TATTAGGATT ACATATTTAA TCGGGGATGA TGATGTTGTC CTAGTATCAA   14460
AAATTATACC AACTATTACT CCGAATTGGT CTAAAATACT CTATCTATAC AAGTTGTATT   14520
GGAAGGATGT AAGTGTAGTG TCCCTTAAAA CATCCAATCC TGCCTCAACA GAGCTTTATT   14580
TAATTTCAAA AGATGCTTAC TGTACTGTAA TGGAACCCAG TAATCTTGTT TTATCAAAAC   14640
TTAAAAGGAT ATCATCAATA GAAGAAAATA ATCTATTAAA GTGGATAATC TTATCAAAAA   14700
GGAAGAATAA CGAGTGGTTA CAGCATGAAA TCAAAGAAGG AGAAAGGGAT TATGGGATAA   14760
TGAGGCCATA TCATACAGCA CTGCAAATTT TTGGATTCCA AATTAACTTA AATCACTTAG   14820
CTAGAGAATT TTTATCAACT CCTGATTTAA CCAACATTAA TAATATAATT CAAAGTTTTA   14880
CAAGAACAAT TAAAGATGTT ATGTTCGAAT GGGTCAATAT CACTCATGAC AATAAAAGAC   14940
ATAAATTAGG AGGAAGATAT AATCTATTCC CGCTTAAAAA TAAGGGGAAA TTAAGATTAT   15000
TATCACGAAG ATTAGTACTA AGCTGGATAT CATTATCCTT ATCAACCAGA TTACTGACGG   15060
GCCGTTTTCC AGATGAAAAA TTTGAAAATA GGGCACAGAC CGGATATGTA TCATTGGCTG   15120
ATATTGATTT AGAATCCTTA AAGTTATTAT CAAGAAATAT TGTCAAAAAT TACAAAGAAC   15180
ACATAGGATT AATATCATAC TGGTTTTTGA CCAAAGAGGT CAAAATACTA ATGAAGCTTA   15240
TAGGAGGAGT CAAACTACTA GGAATTCCTA AACAGTACAA AGAGTTAGAG GATCGATCAT   15300
CTCAGGGTTA TGAATATGAT AATGAATTTG ATATTGATTA ATACATAAAA ACATAAAATA   15360
AAACACCTAT TCCTCACCCA TTCACTTCCA ACAAAATGAA AAGTAAGAAA AACATGTAAT   15420
ATATATATAC CAAACAGAGT TTTTCTCTTG TTTGGT                             15456
```

FIGURE 1G

SEQ ID NO: 36

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ACCAAACAAG AGAAGAGACT TGCTTGGGAA TATTAATTCA AATAAAAATT AACTTAGGAT      60
TAAAGAACTT TACCGAAAGG TAAGGGGAAA GAAATCCTAA GACTGTAATC ATGTTGAGTC     120
TATTCGACAC ATTCAGTGCG CGTAGGCAGG AGAACATAAC GAAATCAGCT GGTGGGGCTG     180
TTATTCCCGG GCAAAAAAAC ACTGTGTCTA TATTTGCTCT TGGACCATCA ATAACAGATG     240
ACAATGATAA AATGACATTG GCTCTTCTCT TTTTGTCTCA TTCTTTAGAC AATGAAAAGC     300
AGCATGCGCA AAGAGCTGGA TTTTTAGTTT CTCTGTTATC AATGGCTTAT GCCAACCCAG     360
AATTATATTT AACATCAAAT GGTAGTAATG CAGATGTTAA ATATGTTATC TACATGATAG     420
AGAAAGACCC AGGAAGACAG AAATATGGTG GGTTTGTCGT CAAGACTAGA GAGATGGTTT     480
ATGAAAAGAC AACTGATTGG ATGTTCGGGA GTGATCTTGA GTATGATCAA GACAATATGT     540
TGCAAAATGG TAGAAGCACT TCTACAATCG AGGATCTTGT TCATACTTTT GGATATCCAT     600
CGTGTCTTGG AGCCCTTATA ATCCAAGTTT GGATAATACT TGTTAAGGCT ATAACCAGTA     660
TATCAGGATT GAGGAAAGGA TTCTTTACTC GGTTAGAAGC ATTTCGACAA GATGGAACAG     720
TTAAATCCAG TCTAGTGTTG AGCGGTGATG CAGTAGAACA AATTGGATCA ATTATGAGGT     780
CCCAACAGAG CTTGGTAACA CTCATGGTTG AAACACTGAT AACAATGAAC ACAGGCAGGA     840
ATGATCTGAC AACAATAGAA AAGAATATAC AGATTGTAGG AAACTACATC AGAGATGCAG     900
GTCTTGCTTC ATTTTTCAAC ACAATCAGAT ATGGCATTGA GACTAGAATG GCAGCTCTAA     960
CTCTGTCTAC CCTTAGACCG GATATCAACA GACTCAAGGC ACTGATCGAG TTATATCTAT    1020
CAAAGGGGCC ACGTGCTCCT TTTATATGCA TTTTGAGAGA TCCCGTGCAT GGTGAGTTTG    1080
CACCAGGCAA CTATCCTGCC CTCTGGAGTT ATGCGATGGG TGTAGCAGTT GTACAAAACA    1140
AGGCCATGCA ACAGTATGTA ACAGGAAGGT CTTATCTGGA TATTGAAATG TTCCAACTTG    1200
GTCAAGCAGT GGCACGTGAT GCCGAGTCGC AGATGAGTTC AATATTAGAG GATGAACTGG    1260
GGGTCACACA AGAAGCCAAG CAAAGCTTGA AGAAACACAT GAAGAACATC AGCAGTTCAG    1320
ATACAACCTT TCATAAGCCT ACAGGGGGAT CAGCCATAGA AATGGCGATA GATGAAGAAG    1380
CAGGGCAGCC TGAATCCAGA GGAGATCAGG ATCAAGGAGA TGAGCCTCGG TCATCCATAG    1440
TTCCTTATGC ATGGGCAGAC GAAACCGGGA ATGACAATCA AACTGAATCA ACTACAGAAA    1500
TTGACAGCAT CAAAACTGAA CAAAGAAACA TCAGAGACAG GCTGAACAAA AGACTCAACG    1560
AGAAAAGGAA ACAGAGTGAC CCGAGATCAA CTGACATCAC AAACAACACA AATCAAACTG    1620
AAATAGATGA TTTGTTCAGT GCATTCGGAA GCAACTAGTC ACAAAGAGAT GACCACTATC    1680
ACCAGCAACA AGTAAGAAAA ACTTAGGATT AATGGAAATT ATCCAATCCA GAGACGGAAG    1740
GACAAATCCA GAATCCAACC ACAACTCAAT CAACCAAAGA TTCATGGAAG ACAATGTTCA    1800
AAACAATCAA ATCATGGATT CTTGGGAAGA GGGATCAGGA GATAAATCAT CTGACATCTC    1860
ATCGGCCCTC GACATCATTG AATTCATACT CAGCACCGAC TCCCAAGAAA ACACGGCAGA    1920
CAGCAATGAA ATCAACACAG GAACCACAAG ACTTAGCACG ACAATCTACC AACCTGAATC    1980
CAAAACAACA GAAACAAGCA AGGAAAATAG TGGACCAGCT AACAAAAATC GACAGTTTGG    2040
GGCATCACAC GAACGTGCCA CAGAGACAAA AGATAGAAAT GTTAATCAGG AGACTGTACA    2100
GGGAGGATAT AGGAGAGGAA GCAGCCCAGA TAGTAGAACT GAGACTATGG TCACTCGAAG    2160
AATCTCCAGA AGCAGCCCAG ATCCTAACAA TGGAACCCAA ATCCAGGAAG ATATTGATTA    2220
CAATGAAGTT GGAGAGATGG ATAAGGACTC TACTAAGAGG GAAATGCGAC AATTTAAAGA    2280
TGTTCCAGTC AAGGTATCAG GAAGTGATGC CATTCCTCCA ACAAAACAAG ATGGAGACGG    2340
TGATGATGGA                                                           2350
```

FIGURE 2A

SEQ ID NO: 36

```
AGAGGCCTGG AATCTATCAG TACATTTGAT TCAGGATATA CCAGTATAGT GACTGCCGCA   2410
ACACTAGATG ACGAAGAAGA ACTCCTTATG AAGAACAACA GGCCAAGAAA GTATCAATCA   2470
ACACCCCAGA ACAGTGACAA GGGAATTAAA AAAGGGGTTG GAAGGCCAAA AGACACAGAC   2530
AAACAATCAT CAATATTGGA CTACGAACTC AACTTCAAAG GATCGAAGAA GAGCCAGAAA   2590
ATCCTCAAAG CCAGCACGAA TACAGGAGAA CCAACAAGAC CACAGAATGG ATCCCAGGGG   2650
AAGAGAATCA CATCCTGGAA CATCCTCAAC AGCGAGAGCG GCAATCGAAC AGAATCAACA   2710
AACCAAACCC ATCAGACATC AACCTCGGGA CAGAACCACA CAATGGGACC AAGCAGAACA   2770
ACCTCCGAAC CAAGGATCAA GACACAAAAG ACGGATGGAA AGGAAAGAGA GGACACAGAA   2830
GAGAGCACTC GATTTACAGA AAGGGCGATT ACATTATTAC AGAATCTTGG TGTAATCCAA   2890
TCTGCAGCAA AATTAGACCT ATACCAAGAC AAGAGAGTTG TGTGTGTGGC GAATGTCCTA   2950
AACAATGCAG ATACTGCATC AAAGATAGAC TTCCTAGCAG GTTTGATGAT AGGAGTGTCA   3010
ATGGATCATG ATACCAAATT AAATCAGATT CAGAACGAGA TATTAAGTTT GAAAACTGAT   3070
CTTAAAAAGA TGGATGAATC ACATAGAAGA CTAATTGAGA ATCAAAAAGA ACAATTATCA   3130
CTGATCACAT CATTAATCTC AAATCTTAAA ATTATGACAG AGAGAGGAGG GAAGAAGGAC   3190
CAACCAGAAC CTAGCGGGAG GACATCCATG ATCAAGACAA AAGCAAAAGA AGAGAAAATA   3250
AAGAAAGTCA GGTTTGACCC TCTTATGGAA ACACAGGGCA TCGAGAAAAA CATCCCTGAC   3310
CTCTATAGAT CAATAGAGAA AACACCAGAA AACGACACAC AGATCAAATC AGAAATAAAC   3370
AGATTGAATG ATGAATCCAA TGCCACTAGA TTAGTACCTA GAAGAATAAG CAGTACAATG   3430
AGATCATTAA TAATAATCAT TAACAACAGC AATTTATCAT CAAAAGCAAA GCAATCATAC   3490
ATCAACGAAC TCAAGCTCTG CAAGAGTGAC GAGGAAGTGT CTGAGTTGAT GGACATGTTC   3550
AATGAGGATG TCAGCTCCCA GTAAACCGCC AACCAAGGGT CAACACCAAG AAAACCAATA   3610
GCACAAAACA GCCAATCAGA GACCACCCCA ATACACCAAA CCAATCAACA CATAACAAAG   3670
ATCTCCAGAT CATAGATGAT TAAGAAAAAC TTAGGATGAA AGGACTAATC AATCCTCCGA   3730
AACAATGAGC ATCACCAACT CCACAATCTA CACATTCCCA GAATCCTCTT TCTCCGAGAA   3790
TGGCAACATA GAGCCGTTAC CACTCAAGGT CAATGAACAG AGAAAGGCCA TACCTCATAT   3850
TAGGGTTGTC AAGATAGGAG ATCCGCCCAA ACATGGATCC AGATATCTGG ATGTCTTTTT   3910
ACTGGGCTTC TTTGAGATGG AAAGGTCAAA AGACAGGTAT GGGAGCATAA GTGATCTAGA   3970
TGATGATCCA AGTTACAAGG TTTGTGGCTC TGGATCATTG CCACTTGGGT TGGCTAGATA   4030
CACCGGAAAT GATCAGGAAC TCCTACAGGC TGCAACCAAG CTCGATATAG AAGTAAGAAG   4090
AACTGTAAAG GCTACGGAGA TGATAGTTTA CACTGTACAA AACATCAAAC CTGAACTATA   4150
TCCATGGTCC AGTAGATTAA GAAAAGGGAT GTTATTTGAC GCTAATAAGG TTGCACTTGC   4210
TCCTCAATGT CTTCCACTAG ATAGAGGGAT AAAATTCAGG GTGATATTTG TGAACTGCAC   4270
AGCAATTGGA TCAATAACTC TATTCAAAAT CCCTAAGTCC ATGGCATTGT TATCATTGCC   4330
TAATACAATA TCAATAAATC TACAAGTACA TATCAAAACA GGAGTTCAGA CAGATTCCAA   4390
AGGAGTAGTT CAGATTCTAG ATGAAAAAGG TGAAAAATCA CTAAATTTCA TGGTTCATCT   4450
CGGGTTGATC AAAAGGAAGA TGGGCAGAAT GTACTCAGTT GAATATTGTA AGCAGAAGAT   4510
CGAGAAGATG AGATTATTAT TCTCATTGGG ATTAGTTGGA GGGATCAGCT TCCACGTCAA   4570
CGCAACTGGC TCTATATCAA AGACATTAGC AAGTCAATTA GCATTCAAAA GAGAAATCTG   4630
CTATCCCCTA ATGGATCTGA ATCCACACTT AAATTCAGTT ATATGGGCAT CATCAGTTGA   4690
AATTACAAGG                                                         4700
```

FIGURE 2B

SEQ ID NO: 36

GTAGATGCAG TTCTCCAGCC TTCATTACCT GGCGAATTCA GATACTACCC AAACATCATA 4760
GCAAAAGGGG TCGGGAAAAT CAGACAGTAA AATCAACAAC CCTGATATCC AACATTGCAA 4820
ATCAGGCTAC CCACAGGAGA AAAATCAAAA ACTTAGGATC AAAGGGATCA CCACGAACCC 4880
CGGAAAACAG CCAAACAAAC CAACACACAA ATCACAGACA AAAAGGAGAA GGCACTGCAA 4940
AGACCGAGAA AAAACAGAAC GCACACAACC AAGCAGAGAA AAGCCAAAGC CCGCCATTCA 5000
CAAACACACC AACAATCCTG CAAACAAGCA CCAAAACAGA GGTCAAAAGA CAAAGAGCAC 5060
CAGATATGAC CATCACAACC ACAATCATAG CCATATTACT AATACCCCCA TCATTTTGTC 5120
AAATAGACAT AACAAAACTG CAACGTGTAG GTGTGTTAGT CAACAATCCT AAAGGCATGA 5180
AGATTTCACA AAATTTCGAA ACGAGATACC TGATATTAAG TTTGATACCC AAAATAGAGA 5240
ATTCACACTC ATGTGGGGAT CAACAGATAA ACCAATACAA GAAGTTATTG GATAGATTGA 5300
TAATTCCTCT ATATGATGGA TTAAAATTAC AAAAAGATGT AATAGTAGTA AGTCATGAAA 5360
CCCACAACAA TACTAATCTT AGGACAAAAC GATTCTTTGG AGAGATAATT GGGACAATTG 5420
CGATAGGGAT AGCCACTTCA GCACAAATCA CCGCAGCAGT CGCTCTTGTC GAAGCTAAAC 5480
AGGCAAAGTC AGACATAGAA AAACTCAAAG AGGCTATAAG AGACACAAAC AAGGCAGTAC 5540
AATCGATTCA AAGTTCTGTA GGTAACCTAA TTGTTGCAGT TAAATCAGTT CAAGACTATG 5600
TCAACAATGA AATTATACCT TCAATCACAA GATTAGGCTG TGAAGCAGCA GGGTTACAAT 5660
TGGGAATTGC ATTGACACAA CATTACTCAG AATTAACAAA TATATTTGGT GATAATATAG 5720
GAACACTGAA AGAAAAAGGG ATAAAATTAC AAGGGATAGC ATCATTATAT CACACAAACA 5780
TAACGGAAAT ATTTACTACT TCAACAGTTG ACCAATATGA TATTTATGAC CTATTATTCA 5840
CTGAGTCAAT CAAGATGAGA GTGATAGATG TTGATTTGAG TGATTACTCA ATTACTCTTC 5900
AAGTTAGACT TCCTTTATTA ACTAAACTAT CAAATACTCA AATTTATAAA GTAGATTCTA 5960
TATCATACAA CATCCAGGGC AAAGAGTGGT ATATTCCTCT TCCCAATCAC ATCATGACAA 6020
AAGGGGCTTT TCTAGGTGGT GCTGATATTA AAGAATGCAT AGAGGCATTC AGCAGTTATA 6080
TATGTCCTTC TGATCCAGGT TACATATTAA ATCACGAGAT AGAGAATTGT TTATCAGGGA 6140
ACATAACACA GTGTCCTAAG ACTGTTGTTA CATCAGATGT GGTACCACGA TACGCGTTTG 6200
TGAATGGTGG ATTAATTGCA AACTGCATAA CAACTACATG TACATGCAAT GGAATTGACA 6260
ATAGAATTAA TCAATCACCT GATCAAGGAA TTAAGATCAT AACACATAAA GAATGCCAGG 6320
TAATAGGTAT AAACGGAATG TTATTCAATA CTAATAGAGA AGGGACATTA GCAACTTATA 6380
CATTTGATGA CATCATATTA AATAACTCTG TTGCACTTAA TCCAATTGAT ATATCTATGG 6440
AACTCAACAA GGCAAAACTA GAATTAGAAG AATCGAAGGA ATGGATAAAG AAATCAAATC 6500
AAAAGTTAGA TTCCGTTGGA AGTTGGTATC AATCTAGTGC AACAATCACC ATAATCATAG 6560
TGATGATAAT AATTCTAGTT ATAATCAATA TAACAATTAT TGTAGTCATA ATCAAATTCC 6620
ATAGAATTCA GGGGAAAGAT CAAAACGACA AAAACAGTGA GCCGTATATA CTGACAAATA 6680
GACAATAAGA CTATACACGA TCAAATATAA AAAGTACAAA AAACTTAGGA ACAAAGTTGT 6740
TCAACACAGC AGCACCGAAT AGACCAAAAG GCAGCGCAGA GGCGACACCA AACTCAAAAA 6800
TGGAATATTG GAAACACACA AACAGCATAA ATAACACCAA CAATGAAACC GAAACAGCCA 6860
GAGGCAAACA TAGTAGCAAG GTTACAAATA TCATAATGTA CACCTTCTGG ACAATAACAT 6920
TAACAATATT ATCAGTCATT TTTATAATGA TATTGACAAA CTTAATTCAA GAGAACAATC 6980
ATAATAAATT AATGTTGCAG GAAATAAGAA AAGAATTCGC GGCAATAGAC ACCAAGATTC 7040
AGAGGACTTC 7050

FIGURE 2C

SEQ ID NO: 36

GGATGACATT GGAACCTCAA TACAGTCAGG AATAAATACA AGACTTCTCA CAATTCAGAG 7110
TCATGTTCAA AACTATATCC CACTATCATT AACACAACAA ATGTCAGATC TCAGAAAATT 7170
TATCAATGAT CTAACAAATA AAAGAGAACA TCAAGAAGTG CCAATACAGA GAATGACTCA 7230
TGATAGAGGT ATAGAACCCC TAAATCCAAA CAAGTTCTGG AGGTGTACAT CTGGTAACCC 7290
ATCTCTAACA AGTAGTCCTA AGATAAGGTT AATACCAGGA CCAGGTTTAT TAGCAACATC 7350
TACTACAGTA AATGGCTGTA TTAGAATTCC ATCGTTAGTA ATCAATCATC TAATCTATGC 7410
TTACACCTCT AATCTTATTA CCCAGGGCTG TCAAGATATA GGGAAATCTT ACCAAGTACT 7470
ACAAATAGGG ATAATTACTA TAAATTCGGA CCTAGTACCT GATTTAAACC CCAGAGTCAC 7530
ACATACATTT AATATTGATG ATAATAGAAG ATCTTGCTCT CTGGCACTAT TGAATACAGA 7590
TGTTTATCAG TTATGCTCAA CACCAAAAGT TGATGAAAGA TCCGATTATG CATCAACAGG 7650
TATTGAGGAT ATTGTACTTG ACATTGTCAC TAATAATGGA TTAATTATAA CAACAAGGTT 7710
TACAAATAAT AATATAACTT TTGATAAACC GTATGCAGCA TTGTATCCAT CAGTGGGACC 7770
AGGAATCTAT TATAAGGATA AAGTTATATT TCTCGGATAT GGAGGTCTAG AGCATGAAGA 7830
AAACGGAGAC GTAATATGTA ATACAACTGG TTGTCCTGGC AAAACACAGA GAGACTGTAA 7890
TCAGGCTTCT TATAGCCCAT GGTTCTCAAA TAGGAGAATG GTAAACTCTA TTATTGTTGT 7950
TGATAAAGGC ATAGATGCAA CTTTTAGCTT GAGGGTGTGG ACTATTCCAA TGAGCCAAAA 8010
TTATTGGGGA TCAGAAGGAA GATTACTTTT ATTAGGTGAC AGAATATACA TATATACTAG 8070
ATCCACAAGT TGGCACAGTA AATTACAGTT AGGGGTAATT GATATTTCTG ATTATACTAA 8130
TATAAGAATA AATTGGACTT GGCATAATGT ACTATCACGG CCAGGGAATG ATGAATGTCC 8190
ATGGGGTCAT TCATGCCCAG ACGGATGTAT AACAGGAGTT TACACTGATG CATATCCGCT 8250
AAACCCATCG GGGAGTGTTG TATCATCAGT AATTCTTGAT TCACAAAAGT CTAGAGAAAA 8310
CCCAATCATT ACTTACTCAA CAGCTACAAA TAGAATAAAT GAATTAGCTA TATATAACAG 8370
AACACTTCCA GCTGCATATA CAACAACAAA TTGTATCACA CATTATGATA AAGGGTATTG 8430
TTTTCATATA GTAGAAATAA ATCACAGAAG TTTGAATACG TTTCAACCTA TGTTATTCAA 8490
AACAGAAGTT CCAAAAAACT GCAGCTAAAT TGATCATCGC ATATCGGATG CAAGATGACA 8550
TTAAAAGAGA CCACCAGACA GACAACACAG GAGACGATGC AAGATATAAA GAAATAATAA 8610
AAAACTTAGG AGAAAAGTGT GCAAGAAAAA TGGACACCGA GTCCCACAGC GGCACAACAT 8670
CTGACATTCT GTACCCTGAA TGTCACCTCA ATTCTCCTAT AGTTAAAGGA AAGATAGCAC 8730
AACTGCATAC AATAATGAGT TTGCCTCAGC CCTACGATAT GGATGATGAT TCAATACTGA 8790
TTATTACTAG ACAAAAAATT AAACTCAATA AATTAGATAA AAGACAACGG TCAATTAGGA 8850
AATTAAGATC AGTCTTAATG GAAAGAGTAA GTGATCTAGG TAAATATACC TTTATCAGAT 8910
ATCCAGAGAT GTCTAGTGAA ATGTTCCAAT TATGTATACC CGGAATTAAT AATAAAATAA 8970
ATGAATTGCT AAGTAAAGCA AGTAAAACAT ATAATCAAAT GACTGATGGA TTAAGAGATC 9030
TATGGGTTAC TATACTATCG AAGTTAGCAT CGAAAAATGA TGGAAGTAAT TATGATATCA 9090
ATGAAGATAT TAGCAATATA TCAAATGTTC ACATGACTTA TCAATCAGAC AAATGGTATA 9150
ATCCATTCAA GACATGGTTT ACTATTAAGT ATGACATGAG AAGATTACAA AAAGCCAAAA 9210
ATGAGATTAC ATTCAATAGG CATAAAGATT ATAATCTATT AGAAGACCAA AAGAATATAT 9270
TGCTGATACA TCCAGAACTC GTCTTAATAT TAGATAAACA AAATTACAAT GGGTATATAA 9330
TGACTCCTGA ATTGGTACTA ATGTATTGTG ATGTAGTTGA AGGGAGGTGG AATATAAGTT 9390
CATGTGCAAA 9400

FIGURE 2D

SEQ ID NO: 36

ATTGGATCCT AAGTTACAAT CAATGTATTA TAAGGGTAAC AATTTATGGG AAATAATAGA 9460
TGGACTATTC TCGACCTTAG GAGAAAGAAC ATTTGACATA ATATCACTAT TAGAACCACT 9520
TGCATTATCG CTCATTCAAA CTTATGACCC GGTTAAACAG CTCAGGGGGG CTTTTTTAAA 9580
TCACGTGTTA TCAGAAATGG AATTAATATT TGCAGCTGAG TGTACAACAG AGGAAATACC 9640
TAATGTGGAT TATATAGATA AAATTTTAGA TGTGTTCAAA GAATCAACAA TAGATGAAAT 9700
AGCAGAAATT TTCTCTTTCT TCCGAACTTT TGGACACCCT CCATTAGAGG CGAGTATAGC 9760
AGCAGAGAAA GTTAGAAAGT ATATGTATAC TGAGAAATGC TTGAAATTTG ATACTATCAA 9820
TAAATGTCAT GCTATTTTTT GTACAATAAT TATAAATGGA TATAGAGAAA GACATGGTGG 9880
TCAATGGCCT CCAGTTACAT TACCTGTCCA TGCACATGAA TTTATCATAA ATGCATACGG 9940
ATCAAATTCT GCCATATCAT ATGAGAATGC TGTAGATTAT TATAAGAGCT TCATAGGAAT 10000
AAAATTTGAC AAGTTTATAG AGCCTCAATT GGATGAAGAC TTAACTATTT ATATGAAAGA 10060
TAAAGCATTA TCCCCAAAGA AATCAAACTG GGACACAGTC TATCCAGCTT CAAACCTGTT 10120
ATACCGCACT AATGTGTCTC ATGATTCACG AAGATTGGTT GAAGTATTTA TAGCAGATAG 10180
TAAATTTGAT CCCCACCAAG TATTAGATTA CGTAGAATCA GGATATTGGC TGGATGATCC 10240
TGAATTTAAT ATCTCATATA GTTTAAAAGA GAAAGAAATA AAACAAGAAG GTAGACTTTT 10300
TGCAAAAATG ACATACAAGA TGAGGGCTAC ACAAGTATTA TCAGAAACAT TATTGGCGAA 10360
TAATATAGGG AAATTCTTCC AAGAGAATGG GATGGTTAAA GGAGAAATTG AATTACTCAA 10420
GAGACTAACA ACAATATCTA TGTCTGGAGT TCCGCGGTAT AATGAGGTAT ACAATAATTC 10480
AAAAAGTCAC ACAGAAGAAC TTCAAGCTTA TAATGCAATT AGCAGTTCCA ATTTATCTTC 10540
TAATCAGAAG TCAAAGAAGT TTGAATTTAA ATCTACAGAT ATATACAATG ATGGATACGA 10600
AACCGTAAGC TGCTTCTTAA CGACAGATCT TAAAAAATAT TGTTTAAATT GGAGGTATGA 10660
ATCAACAGCT TTATTCGGTG ATACTTGTAA TCAGATATTT GGGTTAAAGG AATTATTTAA 10720
TTGGCTGCAC CCTCGCCTTG AAAAGAGTAC AATATATGTT GGAGATCCTT ATTGCCCGCC 10780
ATCAGATATT GAACATTTAC CACTTGATGA CCATCCTGAT TCAGGATTTT ATGTTCATAA 10840
TCCTAAAGGA GGAATAGAAG GGTTTTGCCA AAAGTTATGG ACACTCATAT CTATCAGTGC 10900
AATACATTTA GCAGCTGTCA AAATCGGTGT AAGAGTTACT GCAATGGTTC AAGGGGATAA 10960
TCAAGCCATA GCTGTTACCA CAAGAGTACC TAATAATTAT GATTATAAAG TTAAGAAAGA 11020
GATTGTTTAT AAAGATGTGG TAAGATTTTT TGATTCCTTG AGAGAGGTGA TGGATGATCT 11080
GGGTCATGAG CTCAAACTAA ATGAAACTAT AATAAGTAGT AAAATGTTTA TATATAGCAA 11140
AAGGATATAC TATGACGGAA GAATCCTTCC TCAGGCATTA AAAGCATTGT CTAGATGTGT 11200
TTTTTGGTCT GAAACAATCA TAGATGAGAC AAGATCAGCA TCCTCAAATC TGGCTACATC 11260
GTTTGCAAAG GCCATTGAGA ATGGCTACTC ACCTGTATTG GGATATGTAT GCTCAATCTT 11320
CAAAAATATC CAACAGTTGT ATATAGCGCT TGGAATGAAT ATAAACCCAA CTATAACCCA 11380
AAATATTAAA GATCAATATT TCAGGAATAT TCATTGGATG CAATATGCCT CCTTAATCCC 11440
TGCTAGTGTC GGAGGATTTA ATTATATGGC CATGTCAAGG TGTTTTGTCA GAAACATTGG 11500
AGATCCTACA GTCGCTGCGT TAGCCGATAT TAAAAGATTT ATAAAAGCAA ATTTGTTAGA 11560
TCGAGGTGTC CTTTACAGAA TTATGAATCA AGAACCAGGC GAGTCTTCTT TTTTAGACTG 11620
GGCCTCAGAT CCCTATTCAT GTAACTTACC ACAATCTCAA AATATAACCA CCATGATAAA 11680
GAATATAACT GCAAGAAATG TACTACAGGA CTCACCAAAC CCATTACTAT CTGGATTATT 11740
TACAAGTACA 11750

FIGURE 2E

SEQ ID NO: 36

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ATGATAGAAG AGGATGAGGA ATTAGCTGAG TTCCTAATGG ACAGGAGAAT AATCCTCCCA  11850
AGAGTTGCAC ATGACATTTT AGATAATTCT CTTACTGGAA TTAGGAATGC TATAGCTGGT  11870
ATGTTGGATA CAACAAAATC ACTAATTCGA GTAGGGATAA GCAGAGGAGG ATTAACCTAT  11930
AACTTATTAA GAAAGATAAG CAACTATGAT CTTGTACAAT ATGAGACACT TAGTAAAACT  11990
TTAAGACTAA TAGTCAGTGA CAAGATTAAG TATGAAGATA TGTGCTCAGT AGACCTAGCC  12050
ATATCATTAA GACAAAAAAT GTGGATGCAT TTATCAGGAG GAAGAATGAT AAATGGACTT  12110
GAAACTCCAG ATCCTTTAGA GTTACTGTCT GGAGTAATAA TAACAGGATC TGAACATTGT  12170
AGGATATGTT ATTCAACTGA AGGTGAAAGC CCATATACAT GGATGTATTT ACCAGGCAAT  12230
CTTAATATAG GATCAGCTGA GACAGGAATA GCATCATTAA GGGTCCCTTA CTTTGGATCA  12290
GTTACAGATG AGAGATCTGA AGCACAATTA GGGTATATCA AAAATCTAAG CAAACCAGCT  12350
AAGGCTGCTA TAAGAATAGC AATGATATAT ACTTGGGCAT TTGGGAATGA CGAAATATCT  12410
TGGATGGAAG CATCACAGAT TGCACAAACA CGTGCAAACT TTACATTGGA TAGCTTAAAG  12470
ATTTTGACAC CAGTGACAAC ATCAACAAAT CTATCACACA GGTTAAAAGA TACTGCTACT  12530
CAGATGAAAT TTTCTAGTAC ATCACTTATT AGAGTAAGCA GGTTCATCAC AATATCTAAT  12590
GATAATATGT CTATTAAAGA AGCAAATGAA ACTAAAGATA CAAATCTTAT TTATCAACAG  12650
GTAATGTTAA CAGGATTAAG TGTATTTGAA TATCTATTTA GGTTAGAGGA GAGTACAGGA  12710
CATAACCCTA TGGTCATGCA TCTACATATA GAGGATGGAT GTTGTATAAA AGAGAGTTAC  12770
AATGATGAGC ATATCAATCC GGAGTCTACA TTAGAGTTAA TCAAATACCC TGAGAGTAAT  12830
GAATTTATAT ATGATAAGGA CCCTTTAAAG GATATAGATC TATCAAAATT AATGGTTATA  12890
AGAGATCATT CTTATACAAT TGACATGAAT TACTGGGATG ACACAGATAT TGTACATGCA  12950
ATATCAATAT GTACTGCAGT TACAATAGCA GATACAATGT CGCAGCTAGA TCGGGATAAT  13010
CTTAAGGAGC TGGTTGTGAT TGCAAATGAT GATGATATTA ACAGTCTGAT AACTGAATTT  13070
CTGACCCTAG ATATACTAGT GTTTCTCAAA ACATTTGGAG GGTTACTCGT GAATCAATTT  13130
GCATATACCC TTTATGGATT GAAAATAGAA GGAAGGGATC CCATTTGGGA TTATATAATG  13190
AGAACATTAA AAGACACCTC ACATTCAGTA CTTAAAGTAT TATCTAATGC ACTATCTCAT  13250
CCAAAAGTGT TTAAGAGATT TTGGGATTGT GGAGTTTTGA ATCCTATTTA TGGTCCTAAT  13310
ACTGCTAGTC AAGATCAAGT TAAGCTTGCT CTCTCGATTT GCGAGTACTC CTTGGATCTA  13370
TTTATGAGAG AATGGTTGAA TGGAGCATCA CTTGAGATCT ATATCTGTGA TAGTGACATG  13430
GAAATAGCAA ATGACAGAAG ACAAGCATTT CTCTCAAGAC ATCTTGCCTT TGTGTGTTGT  13490
TTAGCAGAGA TAGCATCTTT TGGACCAAAT TTATTAAATC TAACATATCT AGAGAGACTT  13550
GATGAATTAA AACAATACTT AGATCTGAAC ATCAAAGAAG ATCCTACTCT TAAATATGTG  13610
CAAGTATCAG GACTGTTAAT TAAATCATTC CCCTCAACTG TTACGTATGT AAGGAAAACT  13670
GCGATTAAGT ATCTGAGGAT TCGTGGTATT AATCCGCCTG AAACGATTGA AGATTGGGAT  13730
CCCATAGAAG ATGAGAATAT CTTAGACAAT ATTGTTAAAA CTGTAAATGA CAATTGCAGT  13790
GATAATCAAA AGAGAAATAA AAGTAGTTAT TTCTGGGGAT TAGCTCTAAA GAATTATCAA  13850
GTCGTGAAAA TAAGATCCAT AACGAGTGAT TCTGAAGTTA ATGAAGCTTC GAATGTTACT  13910
ACACATGGAA TGACACTTCC TCAGGGAGGA AGTTATCTAT CACATCAGCT GAGGTTATTT  13970
GGAGTAAACA GTACAAGTTG TCTTAAAGCT CTTGAATTAT CACAAATCTT AATGAGGGAA  14030
GTTAAAAAAG ATAAAGATAG ACTCTTTTTA GGAGAAGGAG CAGGAGCTAT GTTAGCATGT  14090
TATGATGCTA                                                         14100
```

FIGURE 2F

SEQ ID NO: 36

```
CACTCGGTCC TGCAATAAAT TATTATAATT CTGGTTTAAA TATTACAGAT GTAATTGGTC   14160
AACGGGAATT AAAAATCTTC CCATCAGAAG TATCATTAGT AGGTAAAAAA CTAGGAAATG   14220
TAACACAGAT TCTTAATCGG GTGAGGGTGT TATTTAATGG GAATCCCAAT TCAACATGGA   14280
TAGGAAATAT GGAATGTGAG AGTTTAATAT GGAGTGAATT AAATGATAAG TCAATTGGTT   14340
TAGTACATTG TGACATGGAG GGAGCGATAG GCAAATCAGA AGAAACTGTT CTACATGAAC   14400
ATTATAGTAT TATTAGGATT ACATATTTAA TCGGGGATGA TGATGTTGTC CTAGTATCAA   14460
AAATTATACC AACTATTACT CCGAATTGGT CTAAAATACT CTATCTATAC AAGTTGTATT   14520
GGAAGGATGT AAGTGTAGTG TCCCTTAAAA CATCCAATCC TGCCTCAACA GAGCTTTATT   14580
TAATTTCAAA AGATGCTTAC TGTACTGTAA TGGAACCCAG TAATCTTGTT TTATCAAAAC   14640
TTAAAAGGAT ATCATCAATA GAAGAAAATA ATCTATTAAA GTGGATAATC TTATCAAAAA   14700
GGAAGAATAA CGAGTGGTTA CAGCATGAAA TCAAAGAAGG AGAAAGGGAT TATGGGATAA   14760
TGAGGCCATA TCATACAGCA CTGCAAATTT TTGGATTCCA AATTAACTTA AATCACTTAG   14820
CTAGAGAATT TTTATCAACT CCTGATTTAA CCAACATTAA TAATATAATT CAAAGTTTTA   14880
CAAGAACAAT TAAAGATGTT ATGTTCGAAT GGGTCAATAT CACTCATGAC AATAAAAGAC   14940
ATAAATTAGG AGGAAGATAT AATCTATTCC CGCTTAAAAA TAAGGGGAAA TTAAGATTAT   15000
TATCACGAAG ATTAGTACTA AGCTGGATAT CATTATCCTT ATCAACCAGA TTACTGACGG   15060
GCCGTTTTCC AGATGAAAAA TTTGAAAATA GGGCACAGAC CGGATATGTA TCATTGGCTG   15120
ATATTGATTT AGAATCCTTA AAGTTATTAT CAAGAAATAT TGTCAAAAAT TACAAAGAAC   15180
ACATAGGATT AATATCATAC TGGTTTTTGA CCAAAGAGGT CAAAATACTA ATGAAGCTTA   15240
TAGGAGGAGT CAAACTACTA GGAATTCCTA AACAGTACAA AGAGTTAGAG GATCGATCAT   15300
CTCAGGGTTA TGAATATGAT AATGAATTTG ATATTGATTA ATACATAAAA ACATAAAATA   15360
AAACACCTAT TCCTCACCCA TTCACTTCCA ACAAAATGAA AAGTAAGAAA AACATGTAAT   15420
ATATATATAC CAAACAGAGT TTTTCTCTTG TTTGGT                             15456
```

FIGURE 2G

FIG. 3A

Mutagenesis to create restriction sites at start and stop condons of N

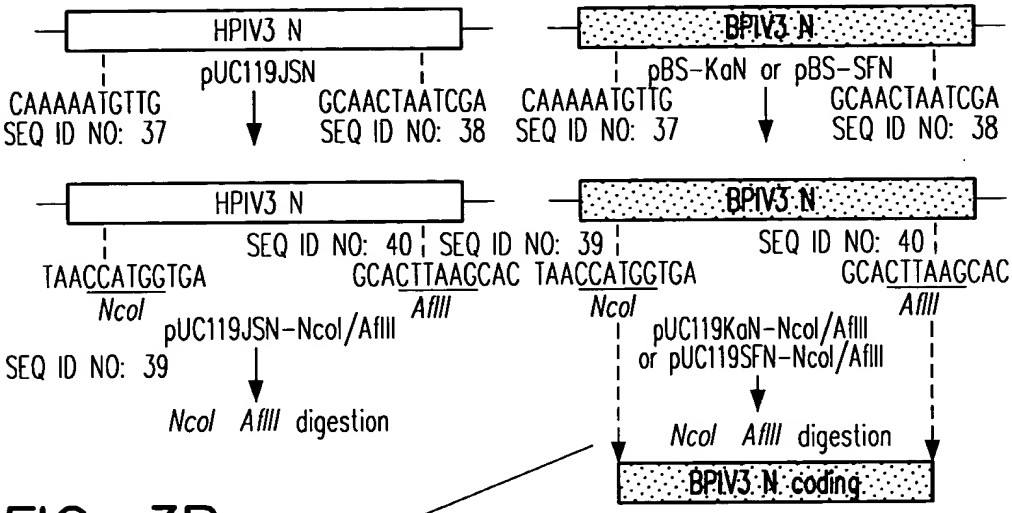


FIG. 3B

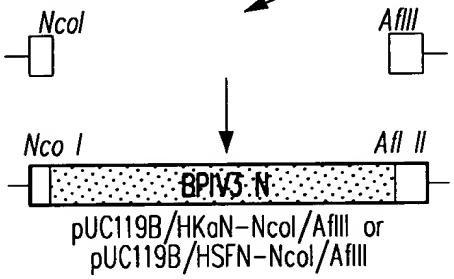


FIG. 3C

Mutagenesis to restore start and stop condon context

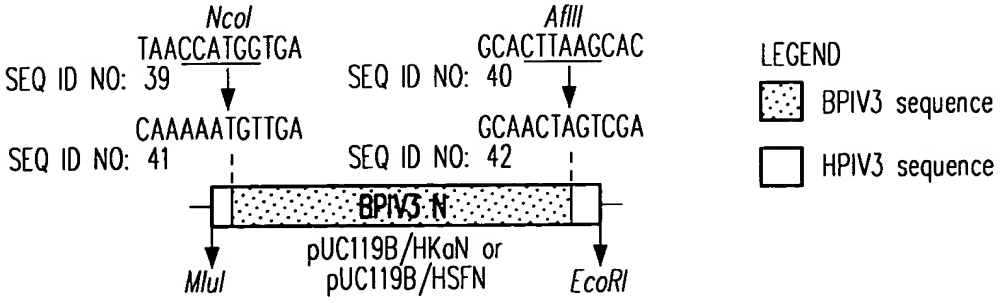


FIG. 4A

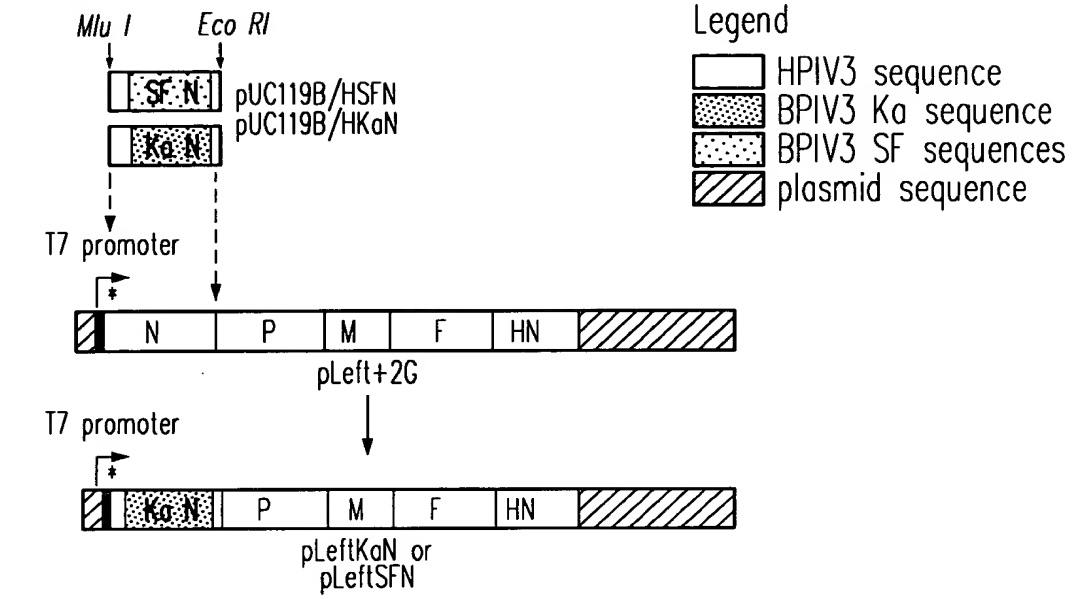


FIG. 4B

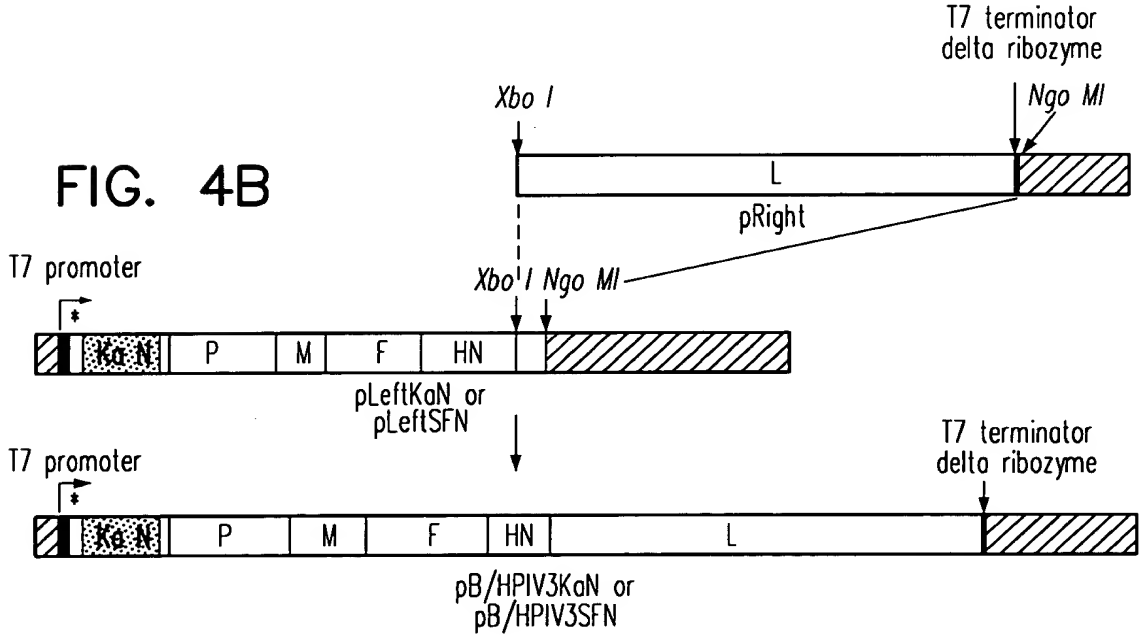


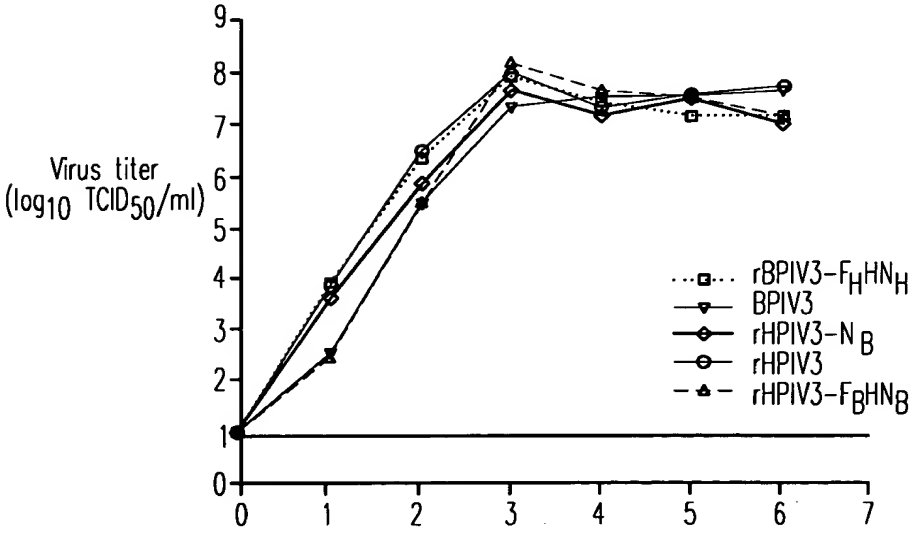
FIG. 5A

SEQ ID NO: 43	rJS	GGAACTCTATAATTTCAAAAATGTTGAGCCTATTTGATAC
SEQ ID NO: 44	cKa	GGAACTCTATAATTTCAAAAATGTTGAGTCTATTCGACAC
SEQ ID NO: 45	cSF	GGAACTCTATAATTTCAAAAATGTTGAGTCTATTCGACAC
SEQ ID NO: 46	Ka	GAAATCCTAAGACTGTAATCATGTTGAGTCTATTCGACAC
SEQ ID NO: 47	SF	GAAATCCTAAGACTGTAATCATGTTGAGTCTATTCGACAC

FIG. 5B

SEQ ID NO: 48	rJS	TTAACGCATTTGGAAGCAACTAATCGAATCAACATTTTAA
SEQ ID NO: 49	cKa	TCAGTGCATTCGGAAGCAACTAGTCGAATCAACATTTTAA
SEQ ID NO: 50	cSF	TCAGTGCATTCGGAAGCAACTAGTCGAATCAACATTTTAA
SEQ ID NO: 51	Ka	TCAGTGCATTCGGAAGCAACTAGTCACAAAGAGATGACCA
SEQ ID NO: 52	SF	TCAGTGCATTCGGAAGCAACTAGTCACAAAGAGATGACCA

FIG. 13



Confirmation of identity of potential BPIV3/HPIV3 chimeras by TaqI digestion

Figure 6A

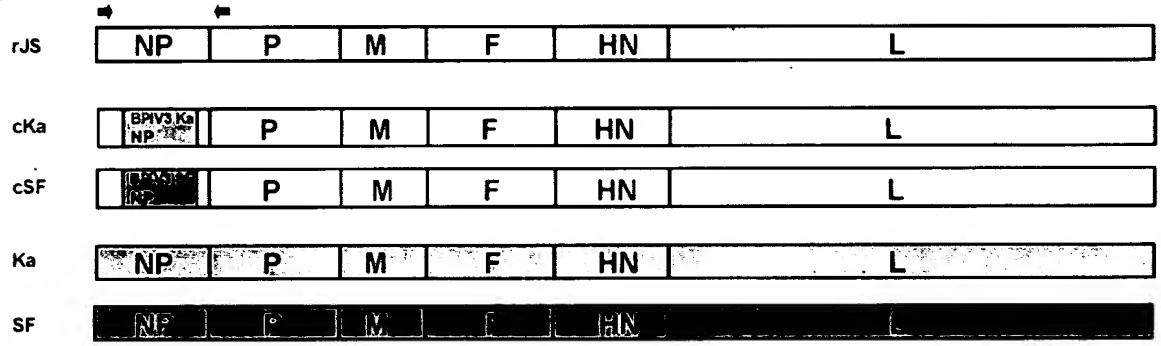


Figure 6B

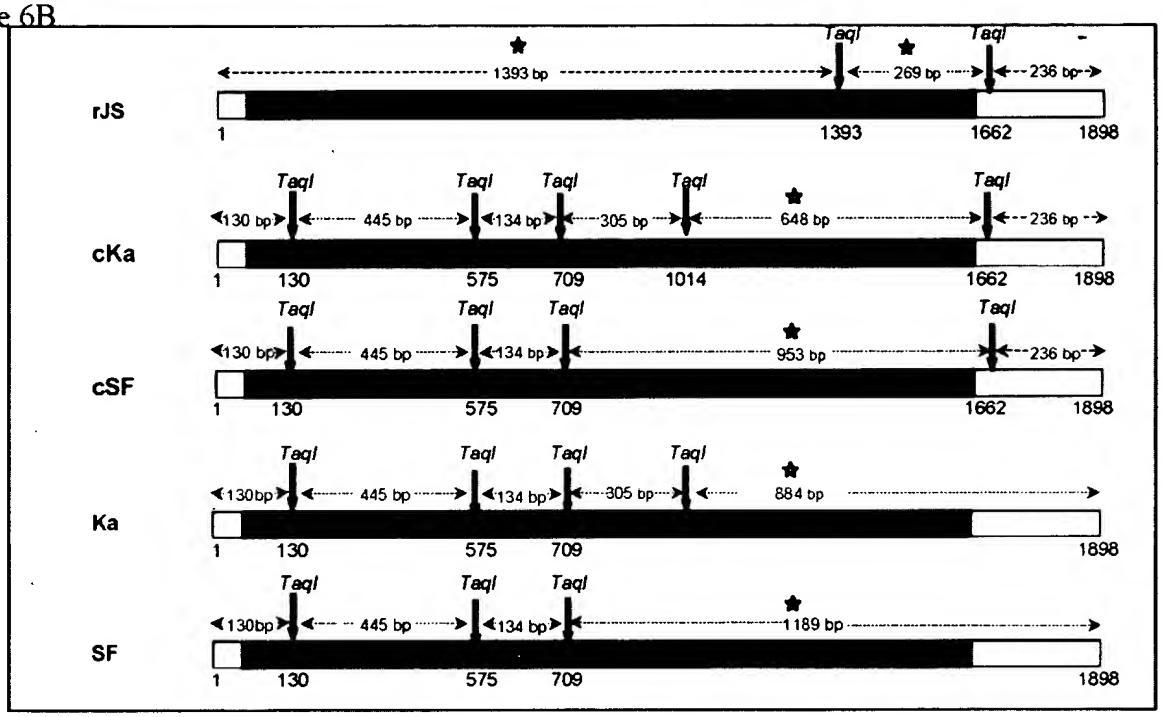


Figure 6C

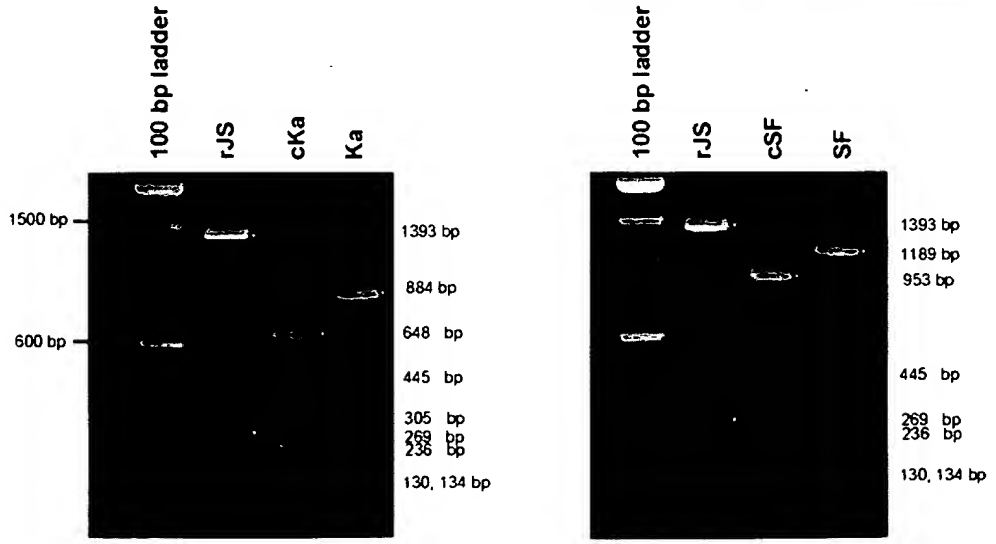


FIG. 7A

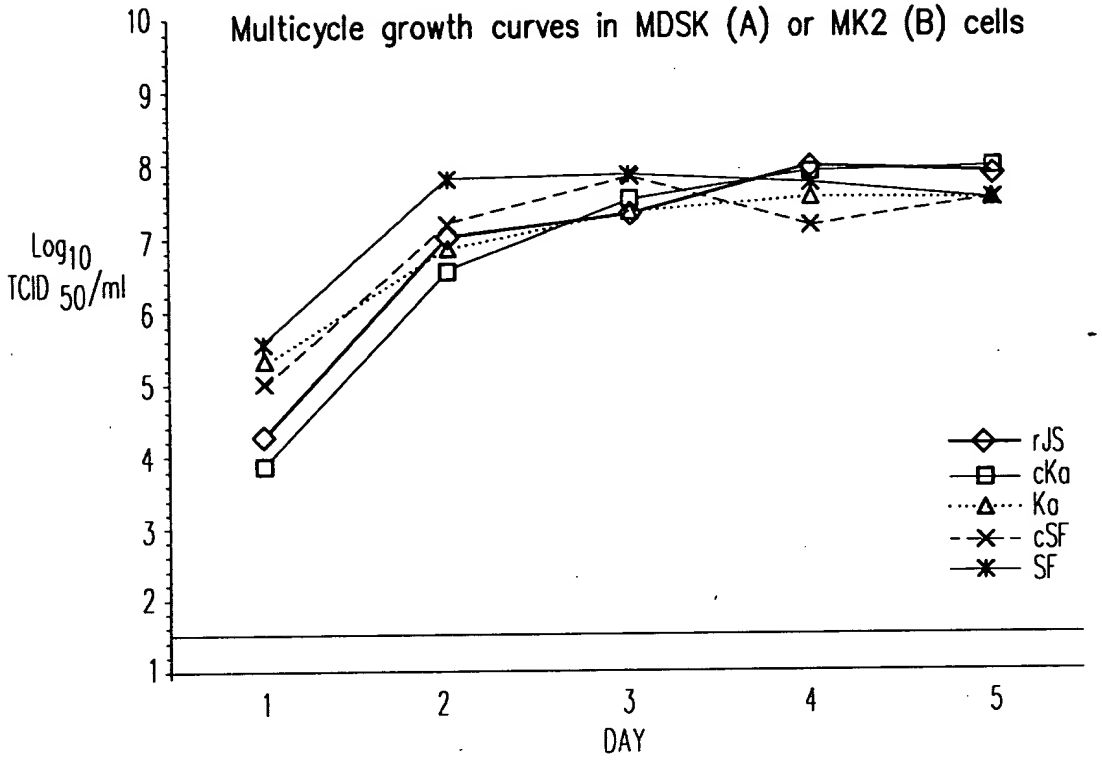


FIG. 7B

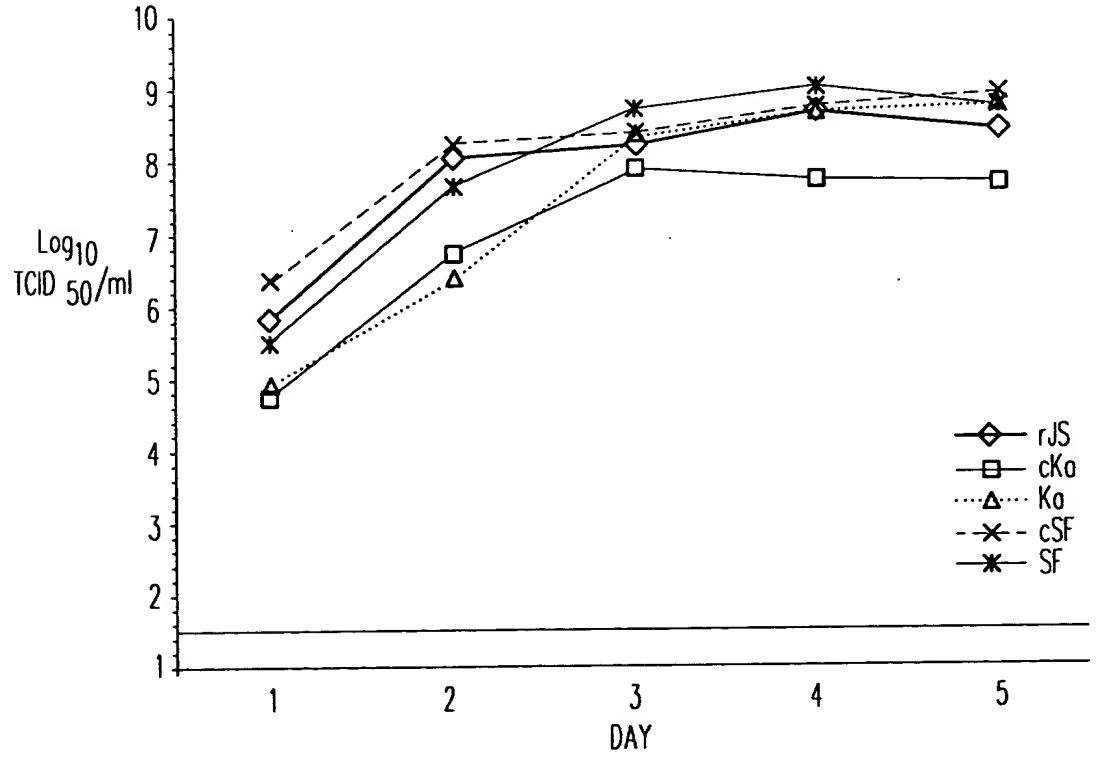


FIG. 8A

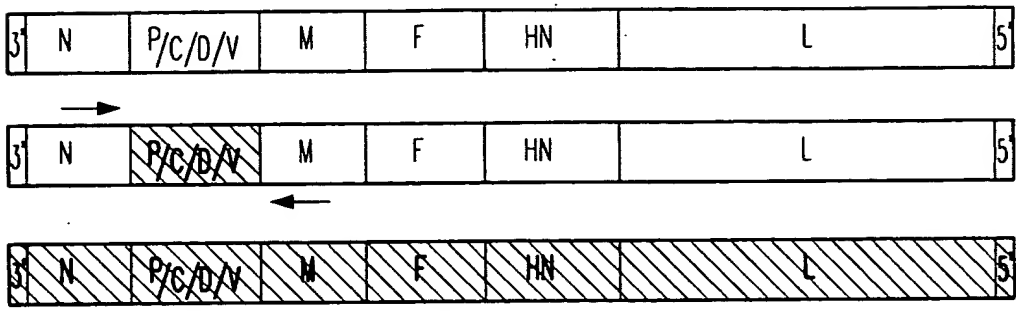


FIG. 8B

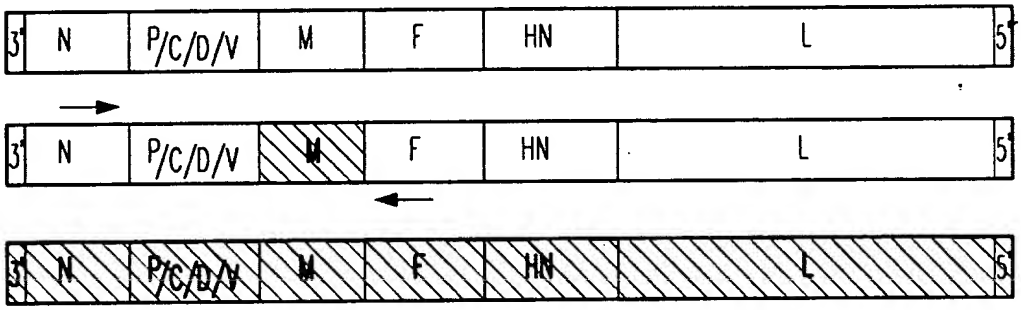


FIG. 11A

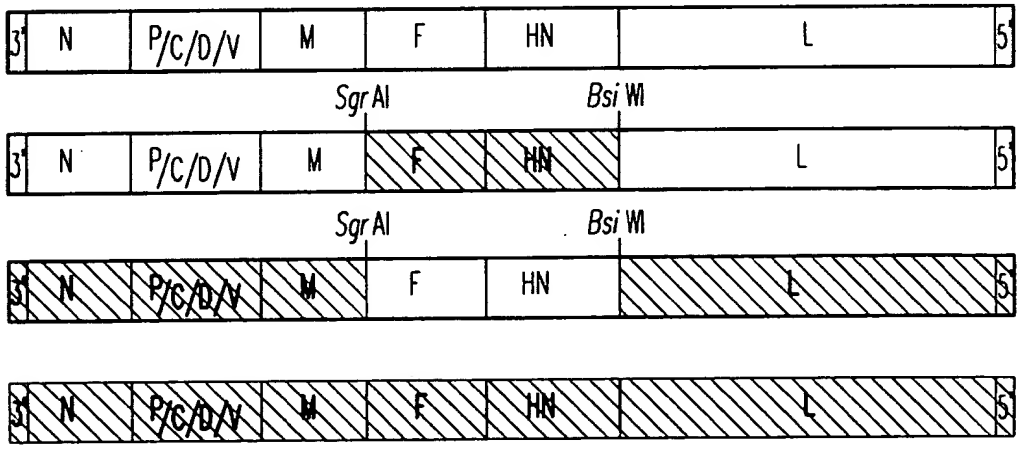
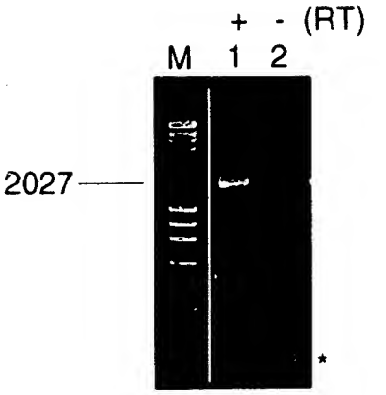
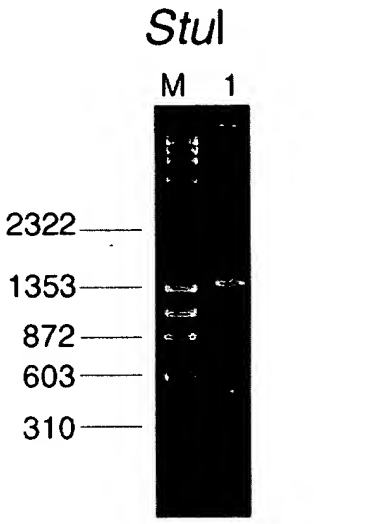


Figure 9A



rHPIV3-P_B

Figure 9B



rHPIV3-P_B

Figure 9C

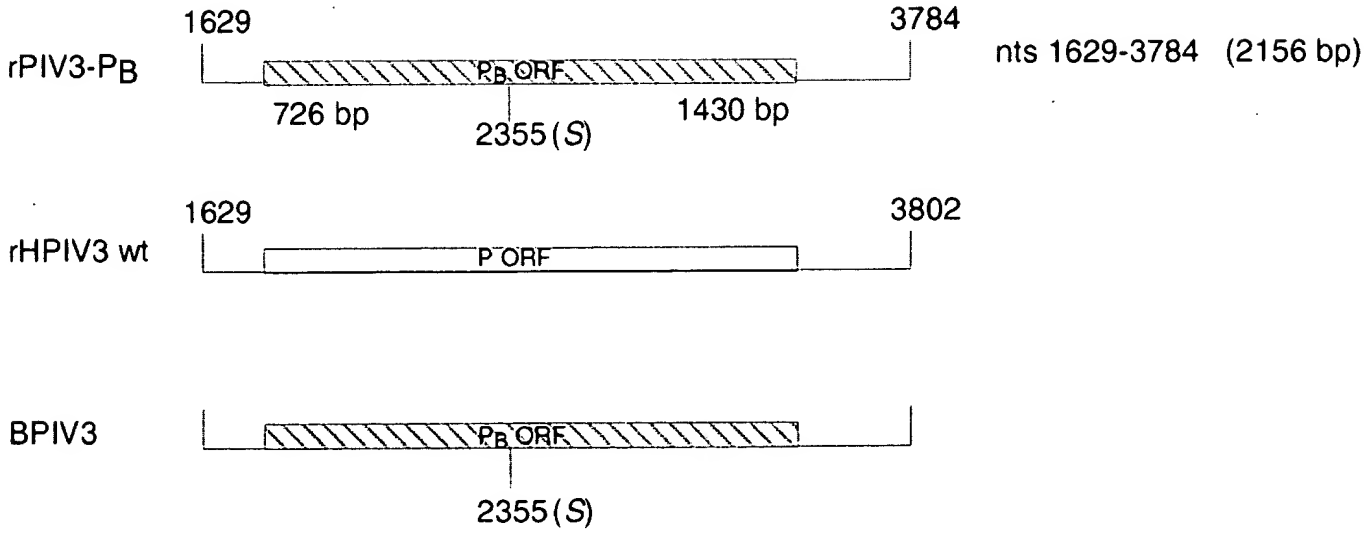
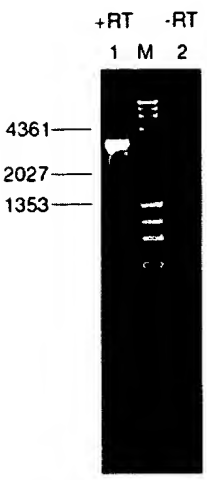
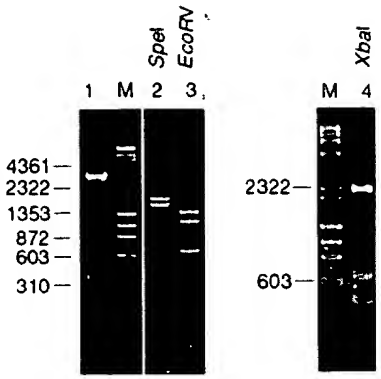


Figure10A



rHPIV3-MB

Figure10B



rHPIV3-MB

Figure10C

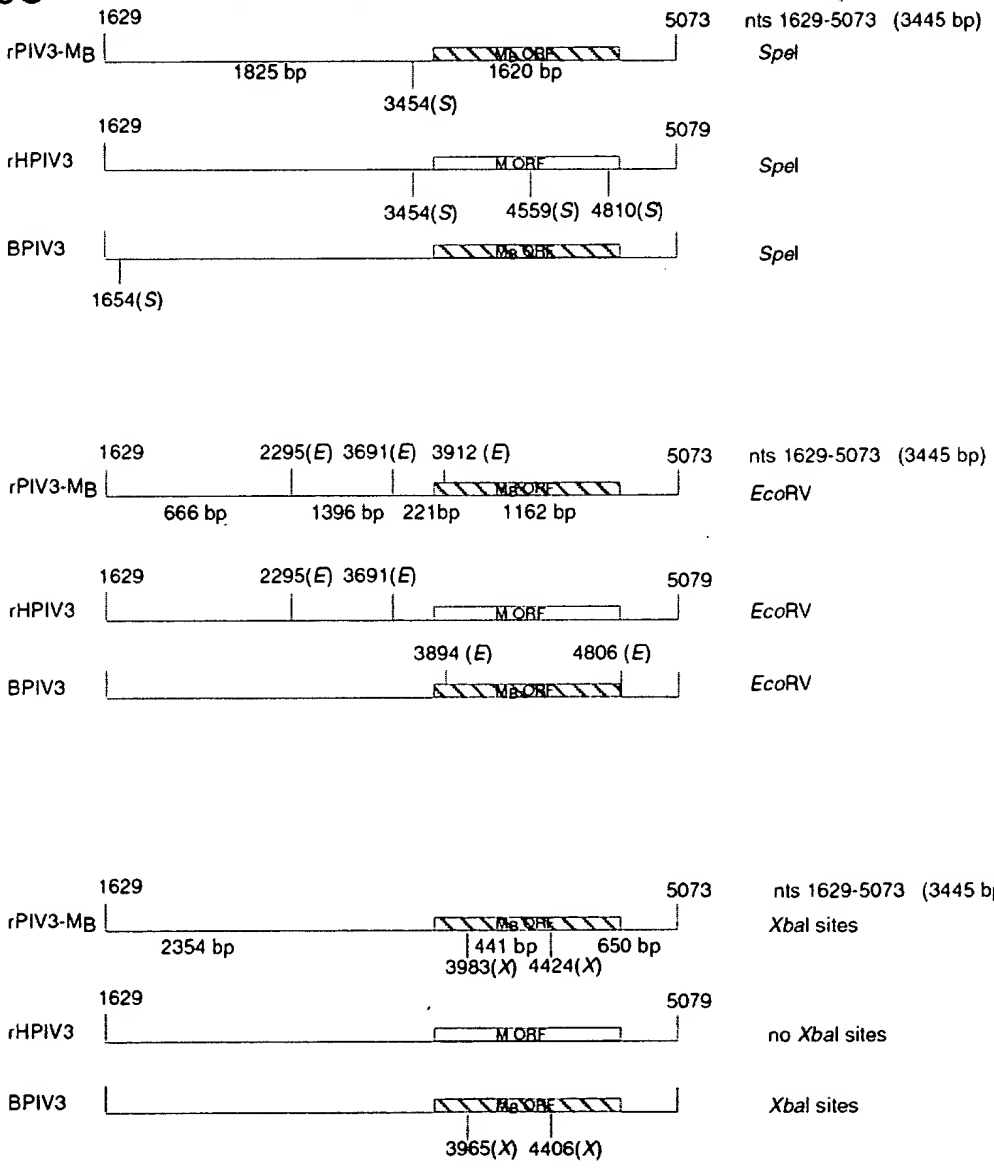


FIG. 11B

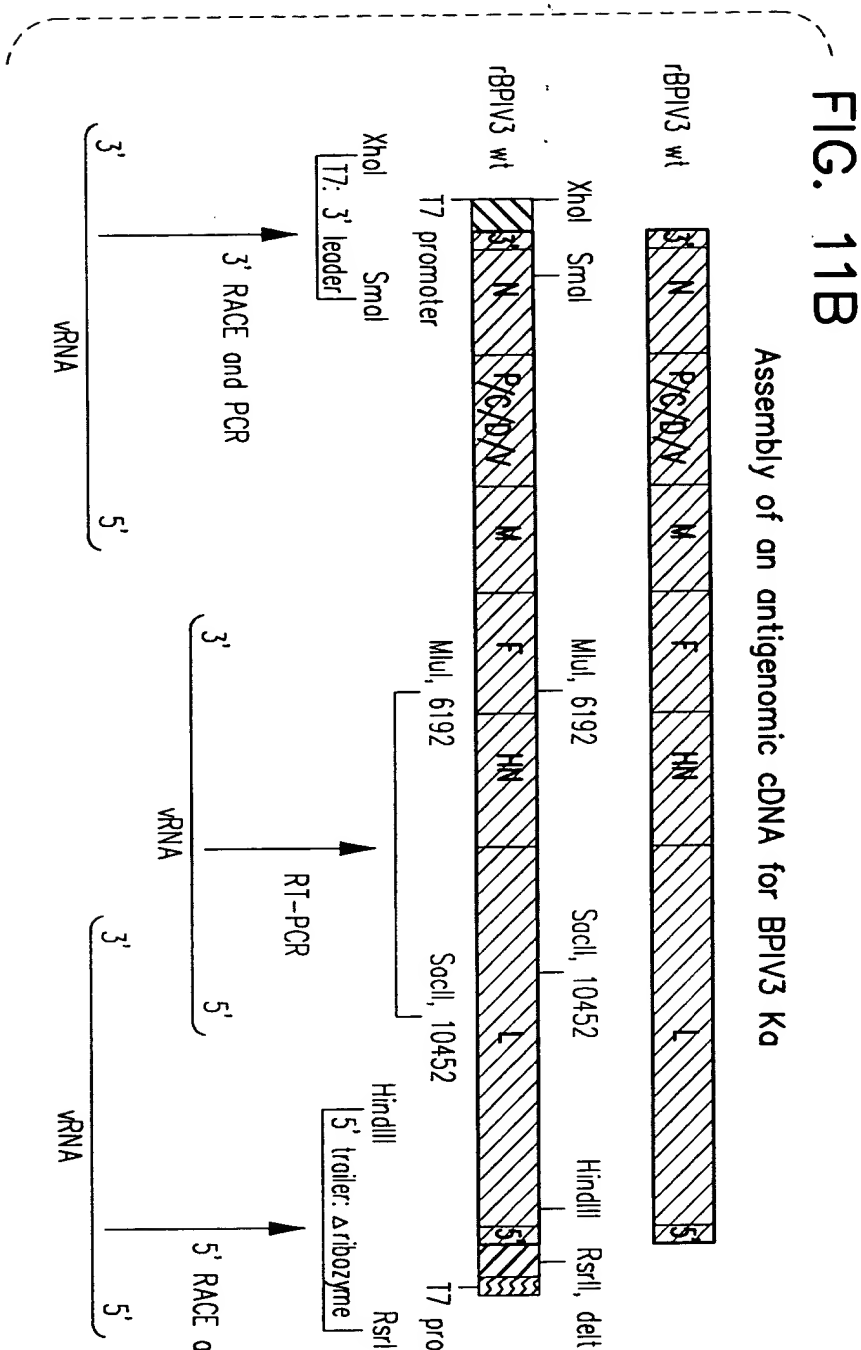
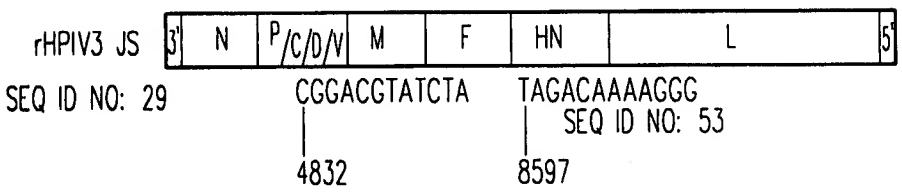
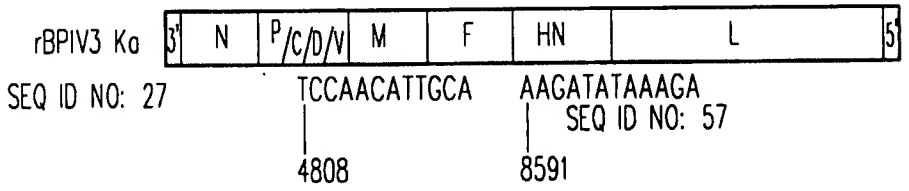


FIG. 11C

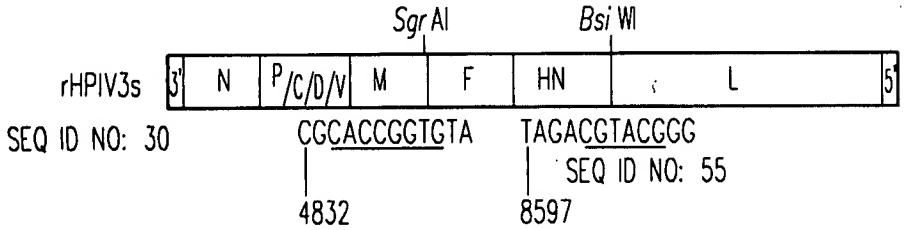
Generation of full length cDNA clones encoding HPIV3/BPIV3 antigenic chimeric viruses

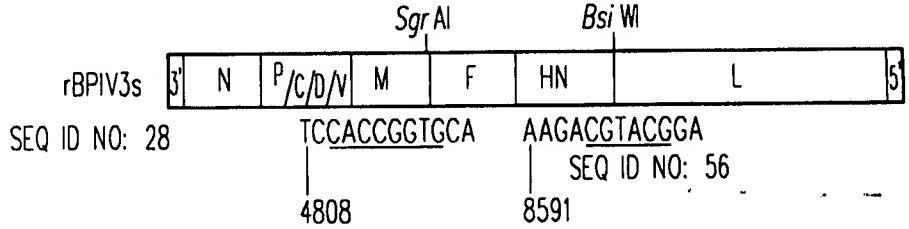
Generation of HPIV3 and BPIV3 full length clones



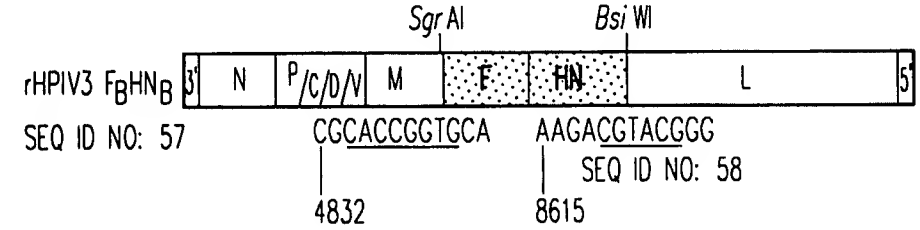


Mutagenesis to create unique SgrAI and SliWI restriction sites





3. Cloning of the F and HN genes into the heterologous full length cDNA



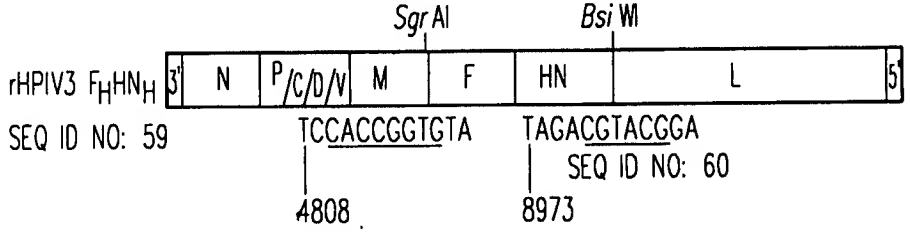
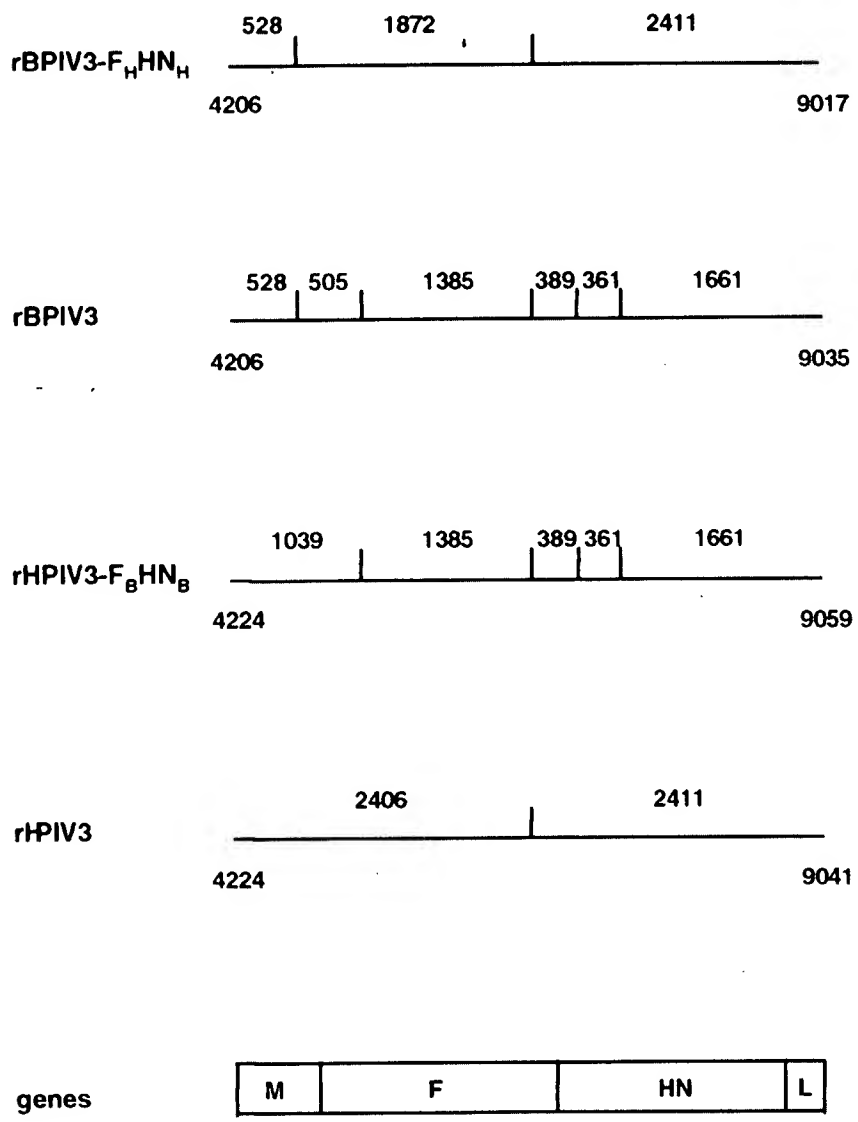


Figure 12



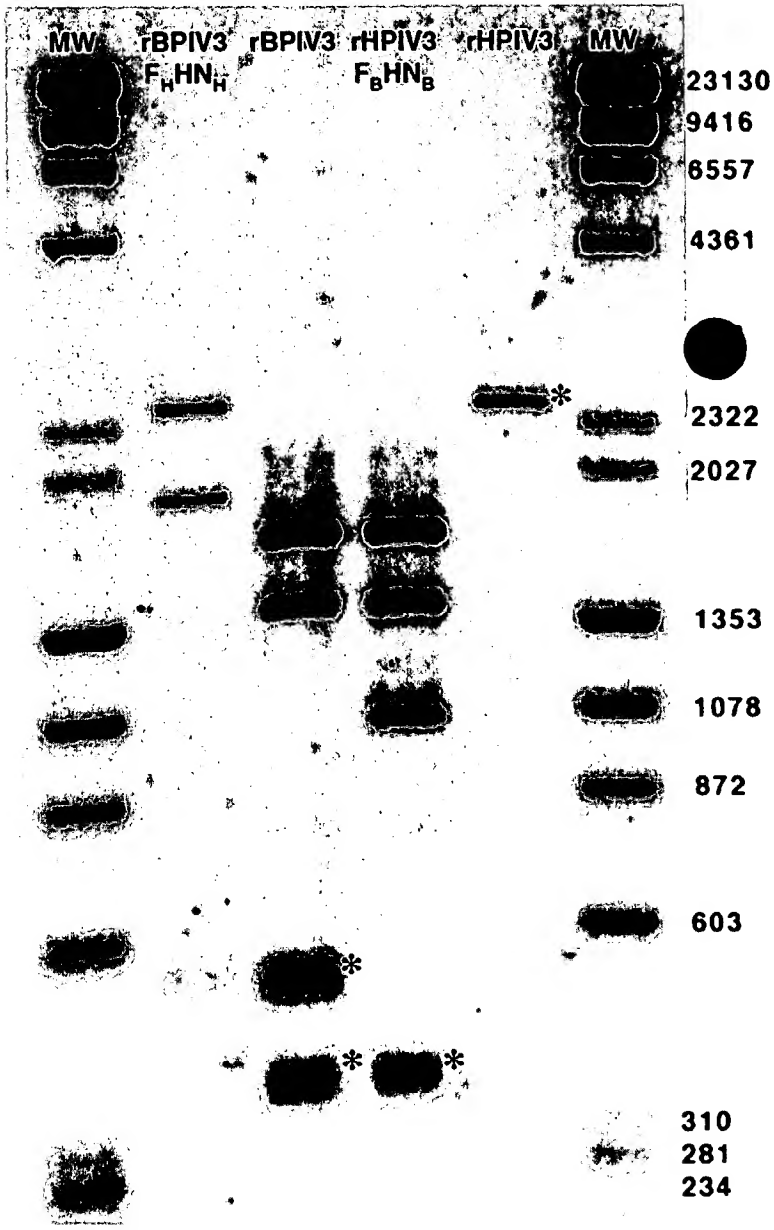


FIG. 14A

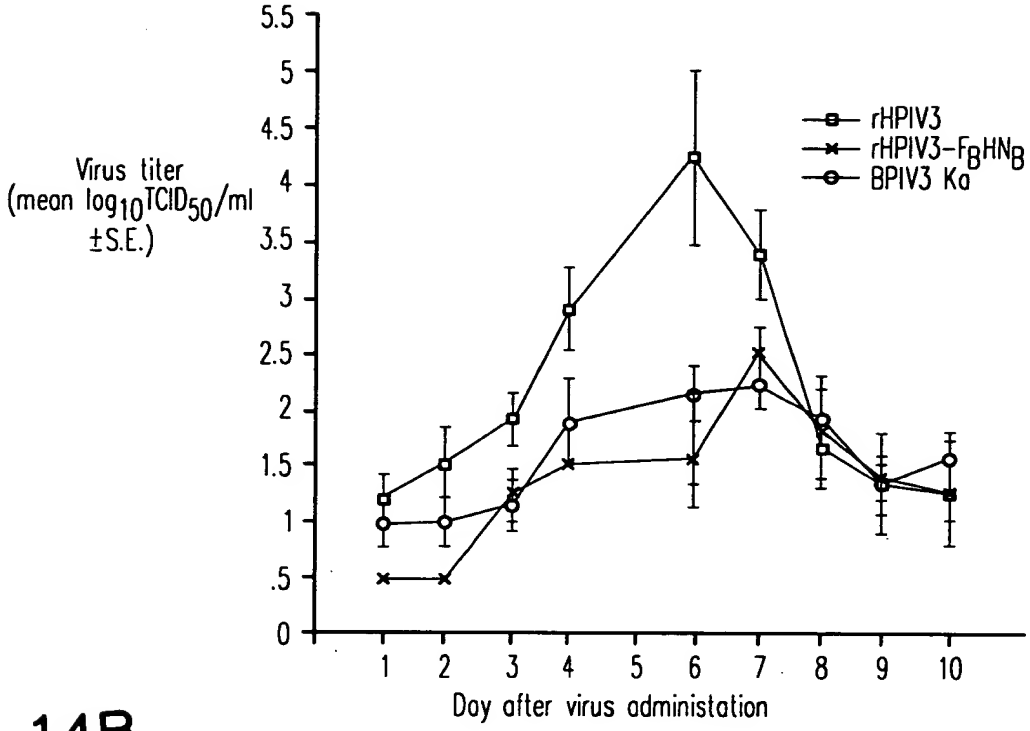


FIG. 14B

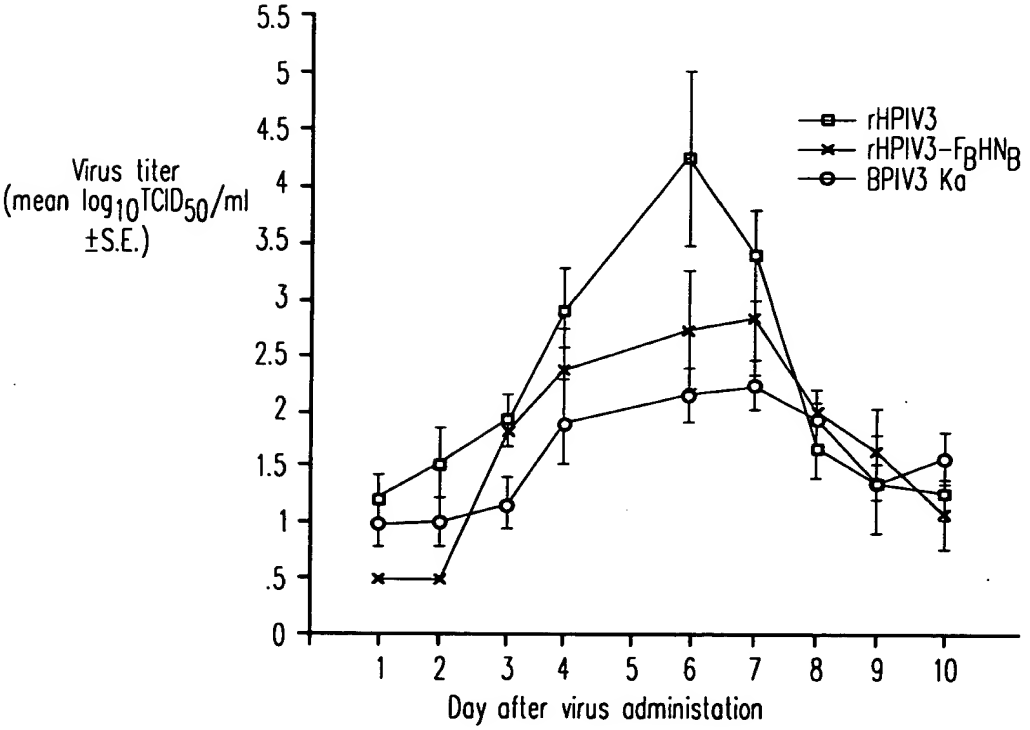


FIG. 15

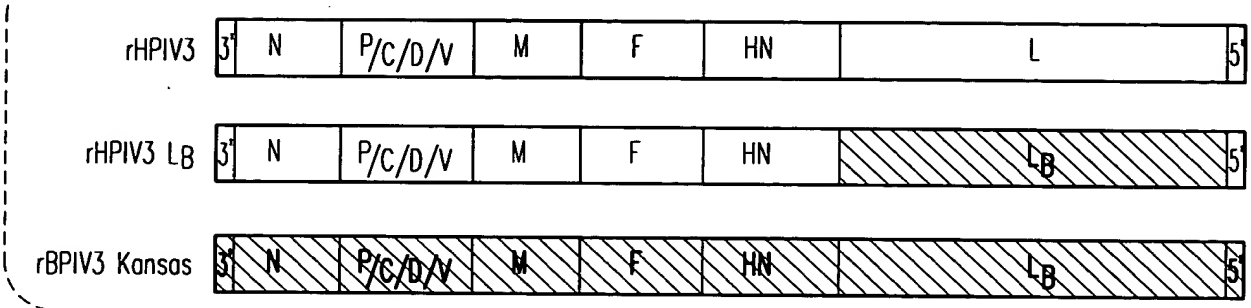


FIG. 16

L START

SEQ ID NO: 61 rHPIV3 WT 8623 5' TAGGAGCAAAGCGTGCTCGGGAAATGGACACTGAATCTAACA 3' 8664
SEQ ID NO: 62 rHPIV3 LB 8623 5' TAGGAGCAAAGCGTGCTCGGGAAATGGACACCGAGTCCCACA 3' 8664
SEQ ID NO: 63 rBPIV3 wt 8617 5' TAGGAGAAAAGTGTGCAAGAAAAATGGACACCGAGTCCCACA 3' 8658

L STOP

SEQ ID NO: 64 rHPIV3 WT 15325 5' ATGATGAATTTGATATCGATTAAAACATAAATACAATGAAGA 3' 15366
SEQ ID NO: 65 rHPIV3 LB 15325 5' ATAATGAATTTGATATTGATTAATA*CGTACG*TACAATGAAGA 3' 15366
SEQ ID NO: 66 rBPIV3 wt 15319 5' ATAATGAATTTGATATTGATTAATACATAAAAACATAAAATA 3' 15360